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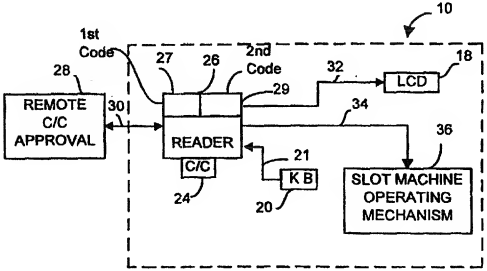

(57) Abstract

A player feeds a general purpose charge card (24), such as a VISA, MasterCard or AMERICAN EXPRESS card, or an account identification to a reader (26) at a gaming machine (10) or enters on a keyboard (20) or other input device, information relating to the general purpose charge card (24) or account identification for transmission to a transaction processing facility. The processing facility associates the account information with a gaming account and determines whether to grant a user request. If the request is granted, the gaming machine (10) is enabled and thereafter one or more running net credit balances are kept by accounting for win-lose-draws. After the playing session is over, net playing credit information is automatically transmitted to the transaction processing facility.

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GAMING MACHINE SYSTEM OPERABLE WITH GENERAL PURPOSE CHARGE CARDS

Reference To Related Applications

This application is a continuation-in-part application of Serial No. 08/430,354 filed April 28, 1995 which in turn is continuation-in-part application of Serial No. 08/060,277 filed May 11, 1993, now U.S. Patent No. 5,457,306 which in turn is a continuation-in-part of Serial No. 07/950,980 filed on September 23, 1992, now abandoned, which in turn is a continuation of Serial No. 07/740,814 filed on August 6, 1991 and now abandoned, which in turn is a continuation of Serial No. 07/453,991 filed on December 19, 1989 and now Patent No. 5,038,022. Said parent applications are hereby incorporated by reference in this application in their entirety as though fully set forth herein.

Technical Field

The invention relates to gaming in general and in particular to using charge cards such as, for example and without limitation, VISA, MasterCard or American Express charge cards, and bank account access cards, to operate gaming machines such as, for example, slot machines. A visual display, a keyboard, and a card reader (or a device such as a keyboard, touch screen or the like for entering card and personal identification information) are associated with the gaming machine to provide playing credit to the player upon approval of the player's charge card. The terms general purpose charge card, or charge card for short, are used herein to distinguish from a prior art "house card" of the type issued for use only in a

specified gaming establishment. A charge card can be a credit card (the card owner is given credit and is billed later) or a debit card (the card owner's account is debited), or some other billing and/or paying arrangement can be made between the issuer and the owner of the general purpose credit card.

Background of the Invention

Casinos and certain other business establishments have gaming machines such as, for example only and without limitation, slot machines in which a player can insert coins, pull a handle, and hope for a winning combination of elements on spinning wheels to allow him or her to win money from the machine. These are games of chance that some individuals play for entertainment and others with the hope of receiving winnings.

Casinos typically have cashiers at windows where patrons can obtain coins or tokens to play the gaming machines. A player who runs out of coins or tokens while at a gaming machine must walk away from the machine and find a cashier to get more coins or tokens, and the player may or may not resume playing. Even if wishing to resume, the player may lose his or her place at the previously chosen machine, and some players find this annoying, e.g., because a player feels that a machine was ready for "payoff" or that the player was on a "roll" on that machine but had to discontinue play to go replenish the supply of coins or tokens. These prior systems therefore disrupt the playing of the machine in a manner which is undesirable for the casino and may also be undesirable from the standpoint of the player.

It has been proposed to use house charge cards which differ from general purpose charge cards in that they are issued by a particular gaming establishment and have restriction on use peculiar to that establishment. Such house cards would avoid the need to get coins or tokens from the cashier or to cash in coins and tokens but still would require a player who does not have such a house card to go through the procedures for obtaining one, and would tend to limit a player to the one or more establishments that have already provided that particular player with a house card.

In addition, the player would have to comply with the restriction imposed on house card use by the issuing casino, e.g., would have settle the account for each house card according to the rules of the particular establishment that issued the card.

Summary of the Invention

The invention relates to gaming machines and systems and particularly to a system and a method that make it possible for a player to participate in games of chance at casinos and other gaming establishments by using a general purpose charge card rather than a house card, and to a system and a method that provide a particularly efficient way for the player to obtain playing credit with a general purpose charge card, to use the playing credit and have it updated to account for wins, losses and draws from games of chance played at one or more machines at one or more casinos, and to ultimately have the player's account at a remote financial institution credited or debited and the account of the playing establishment or establishments credited or debited during and/or after a playing session.

In a particular example of the invention, which is not a limitation on the scope of the invention, a player supplies a general purpose charge card to a gaming machine at a casino, e.g., by feeding the card to a conventional magnetic card reader. The card reader reads selected information from the charge card, transmits it over a data link for validation, e.g., to the card issuer and, upon receiving back a validation over the data link, requests a personal identification number (PIN) from the player. The player enters the PIN, e.g., through a keypad, a touch screen or a keyboard at the gaming machine, which in an alternative embodiment can also be used to manually enter information that would otherwise be read from the card by the card reader. If the PIN is similarly validated, the gaming machine prompts the player to enter an amount of requested playing credit, e.g., through a display or by a voice message. The player enters an amount of requested credit, and the system determines whether to grant that requested credit on the basis of selected criteria. The determination may be made through another communication

with the card issuer, or it can be made on the basis of some other criterion, such as whether the requested amount conforms to a selected threshold. Upon approval of the requested credit, or of some other amount of playing credit, the gaming machine displays to the player the amount of granted playing credit available for play or pay-out at that gaming machine and enables the gaming machine to use said playing credit for plays. The player then plays on that machine, and the system detects those plays and win/lose/draw results therefrom, as well as any pay-out requests by the player and any end-of-play requests by the player. The system maintains and updates credit balances for the gaming machine, for the player and for the casino in response to the detected play results, pay-out requests and end-of-play requests, and displaying at least the updated balance for the player at the gaming machine. The system posts a daily balance for at least the player to a credit process facility, and processes the balances to update accounts for the player and for the casino with the card issuer.

In addition, the system determines if any playing credit remains for the player from a previous transaction, and takes such remaining credit into account in the step of determining whether to grant the requested playing credit. Still in addition, the player can request additional playing credit, in which case the system goes through a similar validation process, and the player can request the use of playing credit at one or more additional gaming machines. If the request for such additional machines is granted, the system takes plays or requests for pay-outs and end-of-play requests at such additional gaming machines into account in maintaining said balances.

One object of this invention is to provide a method, and apparatus for performing the method, of using information concerning an account maintained at an institution for use

in playing games of chance played on a gaming machine at a location which is remote from and is different from the institution, having the steps of: (1) causing information concerning the account to be received by the gaming machine; (2) accessing a gaming account at a processing facility based on information concerning the account; (3) conditioning the gaming machine in accordance with the gaming account to permit plays; (4) maintaining information about the plays on the gaming machine; and (5) selectively causing the gaming machine to transmit information respecting the plays to the processing facility for maintaining the gaming account.

This invention also includes a method having one or more of the following additional steps, and apparatus for performing the steps of: (a) requesting a playing credit through the gaming machine based on the account, determining whether to grant the playing credit, and only permitting plays on the gaming machine if the playing credit is granted; (b) crediting or debiting monetary or non-monetary units to gaming subaccounts of the gaming account for each play on the gaming machine; (c) exchanging one or more units of one subaccount for one or more units of another subaccount; (d) determining, and crediting to a subaccount, the amount of time the gaming machine is accessed or the amount of money wagered on the gaming machine; (e) opening a gaming account by accessing the gaming account; (f) linking one or more accounts maintained with the gaming account by causing information concerning the account and one or more second accounts to be received by the gaming machine; (g) selectively causing the gaming machine to transmit information respecting said net playing credit to the processing facility for use in maintaining the account at the institution; (h) selecting an option for accessing the gaming account, the option being a request for: credit, account linkage, monetary or non-monetary wagering unit, activity monitoring or gaming

account information change; and (i) selecting a default accessing option automatically when plays are performed on said gaming machine without an explicit selection. The wagering units can be frequent flyer miles, credit card bonus points, customer bonus points, and free sample gaming points.

Another object of the invention is to provide a gaming account having: a gaming account identification, one or more linked account identifications, gaming account status information, and linked account status information. The gaming account status information and the linked account status information may include: a credit limit, one or more subaccounts, a player identification, and other information. Also, the subaccounts may have denominations of different monetary and non-monetary wagering units.

Brief Description of the Drawings

Features of the invention are illustrated in the accompanying drawings in which like numerals represent like elements and in which:

FIG. 1 is an isometric view of a gaming machine, such as a slot machine, operating in accordance with the invention for a player to obtain and use playing credit;

FIG. 2 is a diagrammatic representation of a circuit used in obtaining playing credit;

FIG. 3 is a diagrammatic representation of an alternate circuit for remotely communicating with the credit obtaining circuitry at the gaming machine;

FIG. 4 is a flow chart illustrating steps taken by the player to obtain credit at the gaming machine without having to leave the machine;

FIG. 5 is another flow chart illustrating processing steps in obtaining and using playing credit in a gaming system and process;

FIG. 6 is a diagrammatic representation of a circuit for obtaining credit through an intermediate processor;

FIG. 7 is an isometric view of a multiple player gaming machine table;

FIG. 8 is a flow chart illustrating processing steps in obtaining and using playing credit through a gaming account in a gaming system and process; and

FIG. 9 is a diagrammatic representation of a variable length record for a gaming account.

Detailed Description

Gambling casinos and gaming parlors typically include a variety of gaming machines such as slot machines, poker machines which play a card game and other types of machines. Some of these machines dispense coins or tokens as the player obtains a winning combination while in others credit is obtained and indicated on the machine. The player can use the credit to continue to play the machine or the credit can be converted to cash by a cashier in the casino. In such cases, a display of some type, such as a liquid crystal display, may indicate the credit available on that particular machine. However, when the credit has been used and none remains, the player must then insert more coins or tokens in order to continue playing. If that occurs, the player must leave the machine, find a cashier and then obtain more coins or tokens with which to operate the machine. In such case, the player returning to the machine may find it occupied by another player. This may be particularly frustrating to a player who believes that a particular machine is about ready for a "payoff" or that the player is on a particular lucky streak with that machine.

The gaming machine 10 illustrated in FIG. 1 includes features of the invention which enable a player to obtain credit, without having to leave the machine, with the use of a general purpose charge card such as, without limitation, a VISA, American Express or MasterCard card, or a bank account access card. In addition, other cards of the type having a prearranged amount of credit (or available debit) from a remote financial institution may be used. Each time such a charge card is used, the amount of credit available is reduced by the amount used until the granted credit is totally depleted. Such a charge card is discussed in, e.g., U.S. Pat. No. 4,575,622.

The machine 10 has indicators 14 which indicate to the player certain patterns or indicia. Particular combinations of these patterns are designated as winning combinations. The player inserts coins or tokens in a slot such as a slot 19, activates the machine by pulling the handle 12, pushing buttons or taking some other action, and observes the indicators in the displays 14 to determine if a winning combination is obtained. If so, the display 18 may indicate the amount won as a credit which the player may use to continue playing the machine without inserting additional coins or tokens. A player can elect to receive cash or tokens for the credit available, and the appropriate value is obtained either by coins or tokens dropped or dispensed into a slot or tray 16 or the credit is redeemed from a cashier.

If the player has used all of the available coins, tokens or credit won by playing the machine, or if the player wishes not to use coins or tokens at all, the present invention enables the player to obtain playing credit, or further playing credit, without leaving the machine by inserting a general purpose charge card 24 into a slot 22 or by keying in information similar in effect to that which would be read from the card by the card reading device, such as the card number. The charge card may be swiped through a groove instead of being inserted in a slot, as is known in the pertinent technology. The amount of playing credit desired is entered through the keyboard 20. The reader 26 associated with the machine 10 transmits from the card the information concerning the player to a remote location such as, for example, the player's financial institution, along with a first code 27 identifying the gaming machine and, if necessary, a second code 29 identifying the establishment where the machine is located, and any further information that may be desired. The financial institution may then credit the establishment's account and debit the player's account in the amount

entered into the keyboard. In an alternative system, the gaming machine 10 may issue a credit slip indicating the amount of credit obtained and which may be signed by the player, given to a casino employee and kept by the casino for return to the player's financial institution for proper credit. Of course, the playing credit can be a pre-arranged amount, or an amount that is subject to selected restrictions and conditions.

As shown in block diagram form in FIG. 2, the gaming machine 10 includes a card reader 26 having a slot or groove in which the charge card 24 is inserted as illustrated in FIG. 1 or through which the charge card may be swiped. The reader 26 is coupled with a remote card approval financial institution 28 where it is determined if the charge card is entitled to the credit requested and, optionally, if the person requesting playing credit is the rightful user of the card and meets any other conditions for the grant of the requested playing credit. Status of the card is returned over line 30 to reader 26 where status information is supplied to the liquid crystal display 18 on line 32. If the card is invalid, or the person requesting the playing credit is not entitled to it, the display so indicates. If the card is acceptable for the amount of credit desired, the liquid crystal display 18 gives instructions on making use of the credit through the use of the keyboard 20. The information generated through the keyboard 20 is coupled on line 21 to reader 26 which provides the necessary signals on line 24 to the gaming machine operating mechanism 36 to allow the player to use the credit by operating the gaming machine. As indicated earlier, the gaming machine operating mechanism 36 is already in existence and is used by players where credit is accumulated from winnings on the machine and the player simply continues to play the machine using the available credit that has been previously won.

In this case, the credit approved by the remote financial institution is transferred to the machine and the machine operates in a well known manner to allow the player to continue to use the credit indicated, or the approved credit is transferred to an intermediate processing system where information pertaining to that credit is stored and can be accessed and updated as the player uses the credit so that the intermediate processing system can keep the updated status of the credit for some period of time, thus reducing the number of times the remote financial institution would be accessed in connection with the approved credit. Thus, with the novel features of the invention forming part of the gaming machine as illustrated in FIG. 1, the player does not need to leave the machine to obtain further credit, but simply inserts the charge card in slot 22 or swipes the card in the appropriate slot, enters the desired credit amount through keyboard 20 and when the remote institution has approved the credit, the machine indicates the amount of credit obtained and allows the player to continue to play the machine with the credit that was so obtained. When an intermediate processing system is used, located functionally between the gaming machine and the remote financial institution, that intermediate system maintains a net playing credit by initially receiving and recording in memory information regarding the approved credit, then communicating with the gaming machine to receive therefrom information respecting the win/lose/draw plays to keep track of a net playing credit, and communicating information respecting the net playing credit as needed to the remote financial institution. In this embodiment, the intermediate processing system serves as a processing facility which is different from and typically is remote from said financial institution.

As stated previously, a card reading device may be used which allows the card to be swiped through a slot 22 where

it is automatically read and the same procedure is followed to obtain the credit. Further, where a debit-type charge card is used, it would not be necessary to sign any credit slip since the unique code identifying the establishment and the unique code identifying the gaming machine are transmitted to the remote institution along with the player's identification and the proper debits and credits take place automatically. Still further, the player may be asked through the display to provide further identification such as, by way of an example only and without limitation, a PIN (personal identification number) code through keyboard 20.

In order for features of the invention to be used with the machine shown in FIG. 1, the necessary cabling or other communications link must be connected to the machine. If cabling is used, the machine has a fixed location and it cannot be moved conveniently because a move would involve disconnecting all of the cables and reconnecting them at a new location. In order to make the machine more easily movable, the invention may be modified as illustrated in FIG. 3 which is a block diagram representation of an alternate version in which a transceiver 46 is associated with the reader 26 shown in FIG. 2. The machine 10, in this case, need not be located in any particular fixed location, but can be conveniently moved as necessary to any desired location. In such case, the incoming signals from the financial institution such as those approving the card are coupled on line 30, which may be, for example, a telephone line, to an interface unit 38 in the casino. The interface unit couples the incoming signals to transceiver 42 on line 40. Transceiver 42 sends the signals through the air into a corresponding transceiver 46 in the gaming machine. The output of the transceiver is then coupled to reader 26 shown in FIG. 2, and the system operates as described previously. A code unit 50 storing a unique code is associated with each transceiver 46 identifying the

particular gaming machine 10 that is to receive the signal. Thus, only that particular gaming machine 10 will be addressed from transceiver 42 when multiple gaming machines are being serviced in the same establishment. Such coding techniques are well known in the art. The unique codes may be assigned such that not only is the particular gaming machine 10 identified with its own code, but the establishment in which the machine is located may also be identified by a particular code 41 at transceiver 42, so that the remote financial institution approving the credit card has a record of not only the gambling institution, but also the particular gaming machine receiving the credit.

FIG. 4 illustrates a flow chart of the operation of the reader 26 and associated circuits in the gaming machine 10. The system is entered at 52 by the player observing the display at 59 which may indicate, for example only, "INSERT CREDIT CARD". At step 56, the card is inserted in slot 22, or is swiped through a slot, and the display is observed at step 58. The display may show, for example only, a request for the entry of a PIN number. At step 60 the player enters the PIN number through the keyboard, and the display may indicate at 62 "ENTER CREDIT DESIRED". The player then enters the credit desired through the keyboard at step 62 and the display may indicate the amount entered and state "IF AMOUNT ENTERED IS CORRECT, PRESS ENTER". That is indicated at step 66. At step 68, the player presses the enter key and the display, at step 70 indicates the credit balance that was approved. As the machine is played the credit balance is reduced or increased. Thus if $10.00 is indicated as the credit obtained, and each play of the machine costs $1.00, the credit balance as shown will decrease by $1.00 each time the machine is played until the credit balance is zero or is altered by winnings obtained by the player. At step 72, the slot machine operating mechanism is activated so that the player can continue playing the machine. Actuators 17 enable the player to

accept odds in a well-known manner. The player can select patterns diagonally or across or bet variable amounts of credit with each play with the use of the actuators 17 in a well-known manner.

Thus, there has been disclosed a novel apparatus and method of enabling a gaming machine to provide credit to a player operating the machine without leaving the machine. The player simply inserts or swipes a general purpose charge card in or through the reader and enters through the keyboard the amount of credit desired, and the financial institution at a remote distance from the machine approves or denies the credit which is indicated on the display on the machine itself. When the credit is obtained, the machine allows the player to use that credit in playing the machine without the player having to leave the machine to obtain the credit. The play transactions are processed and the ultimate debit or credit to the player's account in the financial institution and billing to the player are made in accordance with the invention.

Referring to FIG. 5, at step 80 a player supplies a general purpose charge card to a gaming machine at a casino, e.g., by feeding the card to a conventional magnetic card reader. The card reader reads selected information from the charge card, transmits it over a data link for validation, e.g., to the card issuer and, upon receiving back a validation over the data link, requests a personal identification number (PIN) from the player. At step 82, which can be an optional step, the player enters the PIN, e.g., through a keypad or a keyboard at the gaming machine. If the PIN is similarly validated at step 84, the gaming machine prompts the player to enter an amount of requested playing credit, e.g., through a display or by a voice message. The player enters an amount of requested credit at step 86, the system checks at step 88 if any credit remains for the player from a previous transaction and processes such remaining credit

at step 90. Upon player approval at step 92 of the processing up to that point, the system determines at step 94 whether to grant that requested credit on the basis of selected criteria. The determination may be made through another communication with the card issuer, or it can be made on the basis of some other criterion, such as whether the requested amount conforms to a selected threshold. Upon approval of the requested credit, or of some other amount of playing credit, the gaming machine at step 96 displays to the player the amount of granted playing credit available for play or pay-out at that gaming machine, and at step 98 enables the gaming machine to use said playing credit for plays. The player at step 100 can similarly request playing credit for one or more additional gaming machines and, upon approval by the system at step 102, such one or more additional gaming machines are enabled at step 104 for play by that player. The player plays the enabled machines, and the system at step 106 detects those plays and win/lose/draw results therefrom, as well as any pay-out requests by the player and any end-of-play requests by the player. The system maintains credit balances for the gaming machine, for the player and for the casino and at step 108 updates those balances in response to the detected play results, pay-out requests and end-of-play requests, and at step 110 displays at least the updated balance for the player at the gaming machine. The system at step 112 closes out requests for each enabled machine, as well as for the casino and the player, computes a daily balance at step 114, processes close out requests per machine, casino and player at step 116, and at step 118 posts a daily balance for at least the player to a credit process facility, where the balance is processed at step 120 for eventual use in the player's billing statement from the card issuer. The use of PIN number is optional. The system can be arranged to omit any use of a PIN number or to use some aid to identification other than a PIN number.

The functional relation of the main elements of the system is illustrated in Fig. 6, where casinos 122, e.g., casinos 1 through M, each having gaming machines such as slot machines 1 through N, where M and N are positive integers, are connected through respective communication links with an intermediate processing system 124 which in turn is connected through respective communication links with remote financial institutions such as VISA, American Express and MasterCard. As described above, the remote financial institution approves a playing credit requested through a gaming machine at a casino or other gaming establishment, and intermediate processing system 124 keeps track of the net playing credit as the player plays games of chance, so that the remote financial institution can be accessed fewer times, e.g., only when the player ends playing or at a specified time, e.g., at closing time for the day, and any charge for the play can be communicated to the remote financial institution as a single line item for the day or the playing session even if it resulted from a great number of plays each changing the then current net playing credit. Still in addition, a bill processing facility 126 can be functionally interposed between the intermediate processing system and the remote financial institutions to accumulate information respecting the net playing credit as needed so that information defining a single line item on a player's bill from the remote financial institution can be supplied to the remote financial institution rather than accessing the remote financial institution more frequently.

As illustrated in Fig. 7, this invention also includes the use of credit obtained in accordance with this invention and of net playing credit in a multiple player game which can be played at a game table, such as poker. In this embodiment, each player participating in the game has a display 132, an input device 134 such as a keyboard or touch screen and, optionally, a card reader 136 through

which playing credit can be obtained using a general purpose charge card in accordance with this invention. Each player's display and/or a separate display 138 at the table which is visible to all the players, shows the total amount of the wagered playing credit from all the players, that is, the "pot" and may also show individual player wagers, that is, each "bet". To make wagers, the player can enter the amount to wager on the input device. If the player wins, the player's net playing credit is increased by the amount in the pot, less any commission taken by the gaming operator which is credited to the gaming operator's account. The gaming operator may or may not be the owner of the particular establishment or location in which the gaming table or the participating players are located.

This invention also operates in a mixed environment, that is, some players can use the display and input device, other players can use cash or tokens, and still other players can use a combination. In such instances, the value of the wagered cash or tokens can be entered for display by the dealer, or the table may be equipped with a slot or other mechanism which automatically counts tokens or cash inserted therein, and the total pot can be tallied automatically for display. Similarly, payouts can be made electronically to a winning player's net playing credit or in tokens or cash.

Additionally, this invention provides that gaming machines for multiple players, as with gaming machines for individual players, desirably can be located in business establishments and similar locations where the receiving and dispensing of coins or tokens is impractical. For example, any establishment or location which provides facilities for a computer which has appropriate gaming software and which can be connected to a remote financial institution, directly or through intermediate computers, provides a gaming establishment where a player might play

a multiple player game through the gaming machine. Since most computers with these capabilities, for example modem-equipped personal computers, personal digital assistants (PDAs) and portable computers, typically do not have any way to receive or dispense coins or tokens, this invention provides that where the computer is serving as part of the gaming machine in a multiple player game, the computer can connect to a processing facility of the gaming operator and then directly or through other intermediate processing facilities to each of the players' remote financial institutions to obtain playing credit from each player's respective general purpose charge card. Alternatively, a player can connect directly to the remote financial institution and have the remote financial institution provide the credit approval to the gaming operator's processing facility. Once a computer is connected to the gaming operator's processing facility, the processing facility provides the means for each player to effect one or more of the following: (1) to obtain playing credit from the player's remote financial institution in accordance with this invention using a general purpose charge card; (2) to have a net playing credit maintained electronically; and (3) to have information about the game being played sent to and received from the processing facility. The game play information which is exchanged between the processing facility and a player's computer allows for additional capabilities. For example, the processing needed to emulate a mechanical gaming machine, such as wheel spinning for a slot machine, can be performed by either the processing facility or the player's computer.

Multiple player games are possible where the processing facility is connected to multiple gaming machines at the same time and where the processing facility receives game play information from each of these gaming machines. In fact, because players in different establishments or locations can be connected to the processing facility, the

game operator can, in effect, create "electronic gaming tables". Thus, such computer based multiple player gaming machines can be used from virtually any location so long as a connection to the processing facility is provided for each player. In addition, using mobile communications such as cellular telephones, one or more of the multiple players and respective gaming machines can be in motion, such as on a transportation vehicle, while the game is played.

The operation of a gaming machine for multiple players according to this invention can be illustrated by the following example of a passenger/player in a transportation vehicle. If the passenger wishes to play, the passenger can connect to a processing facility by a touch screen display panel or the like provided at the passenger's seat or by using a portable computer with appropriate software and a mobile communication device such as a cellular telephone. Once connected to the processing facility through the gaming software, the player can transmit a general purpose charge card number and/or other identification information such as the charge card's expiration date to request playing credit. Alternatively, the charge card can be read by a charge card reader provided at the passenger's location. Once the request is received, the processing facility, which can be a computer on-board the vehicle, determines what playing credit approval is needed to be obtained from a financial institution. In such a case the on-board processing facility calls from an on-board telephone or other communication system to either another intermediate processing facility of the gaming operator which can call a remote financial institution or directly to the remote financial institution to obtain approval for the requested playing credit. Once approved, the on-board processing facility keeps track of the net playing credit so that any time during the trip the player wishes to play, the net playing credit can be used without having to seek new

approval from the financial institution. Even if the passenger changes his or her seat, by entering the charge card or other identifying information, the net playing credit can be transferred to another gaming machine at the new seat or, if the player wants to operate several gaming machines at the same time, the net playing credit can be accessed simultaneously from multiple gaming machines. This procedure for obtaining credit is the same as for the individual player, however, once credit is approved, the passenger can request to participate in a multiple player game. In response, the on-board processing facility attempts to form an electronic gaming table by checking if other passengers have requested such a game. Alternatively, the passenger can specify which passengers are to be included in the multiple player game. If no other passengers on the same vehicle are available or choose to participate in a multiple player game, the on-board processing facility can connect with other processing facilities to identify players at other locations. Alternatively, or in addition, at the passenger's request, the processing facility can simulate other players using simulation software. During the trip and/or when the trip has ended, the on-board computer can contact the gaming operator's processing facility, and/or the remote financial institution to update a passenger's account and/or the gaming operator's account in accordance with the changes to the net playing credit.

Another aspect of this invention, is the automatic conversion of the net playing credit into the wagering unit of the gaming machine being played. On most gaming machines, the display and list of payouts are based on a wagering unit for that gaming machine, such as, 5 cents, 25 cents, one dollar, five dollars etcetera; for example, 4 wagering units of the 25 cents machine is one dollar. In a traditional casino, when a player wishes to play a gaming machine with a different wagering unit the player must

first cash in the coins or tokens of one wagering unit and then obtain coins or tokens of the other wagering unit. This invention, instead, provides that the net playing credit can be requested and/or played in the wagering unit of the gaming machine into which the player has inserted the general purpose charge card. So for example, a $100 net playing credit will be displayed as 400 at a 25 cent wagering unit gaming machine, but will be displayed as 200 at a 50 cent wagering unit gaming machine. In one embodiment of the invention, the player can select to have the net playing credit displayed in either the wagering unit of the game machine being played, in the local currency or in the wagering unit of the player's choice.

Another embodiment of this invention allows the player to use the general purpose charge card to open and/or maintain a gaming account with the gaming operator from a gaming machine or from another machine at which the player can use the general purpose charge card to remotely access the processing facility. Although the gaming account, like the net playing credit, can be reconciled with the general purpose charge card at the financial institution at the end of a playing session, the gaming account also exists independently of the account at the financial institution and is accessed whenever the general purpose charge card is used.

As illustrated in FIG. 8, in operation, the player enters the general purpose charge card account information, for example, by keying in the general purpose charge card number or by swiping the card through a card reader. Upon receiving the general purpose charge card information 140, the processing facility uses the information to determine whether this general purpose charge card has been used before to establish a gaming account with the gaming operator 142. If no such gaming account is identified 142, 144, a new gaming account is opened 146. Such an account

may have been established by earlier plays on a gaming machine of the gaming operator. However, if the gaming operator, for example a hotel, a ship or an airline, provides other services, the processing facility may already have received requests for credit based on the general purpose charge card, for example when a guest rents a room or a passenger purchases a ticket. This earlier information, in one embodiment, is used to open the gaming account. Also, the earlier information can be used by the processing facility to determine if credit approval/authorization should be granted 148. As the player uses the gaming machine, winnings are deposited in, or losses are withdrawn from, the gaming account. When the player has finished gaming, the processing facility can: (1) issue credit or debit the general purpose charge card account; (2) retain any credit or debit balance in the gaming account for subsequent use by the player; or (3) a combination of the two. Thus, for example, if a player has winnings of $100, the player could choose to credit the general purpose charge card account with $50 and to leave $50 in the gaming account for future use. Alternatively, the processing facility allows the gaming account to retain any credit or debit for a specified amount of time or until a specific event occurs, before crediting or debiting the general purpose charge card account.

Another aspect of this invention, uses the general purpose charge card account to track the player's gaming activity. Such tracking is used by gaming operators, such as casinos, for providing bonuses to the players, such as prizes and free accommodations. In such an environment, the identification information from a general purpose charge card is used with or without a request for credit to identify the player at a gaming machine without any transfer of credit or money. In this embodiment, the player inserts the general purpose charge card into the gaming machine and selects the option for activity

monitoring only. Such an option can be displayed in addition to the request for credit option. For example, the player can select an option named "Preferred Player Bonus Program Only". Alternatively, the activity monitoring operation can be the default, that is, if a player enters the card identification and starts playing without requesting credit or another option, the activity monitoring only option is automatically selected by the gaming machine as the user request. In activity monitoring, the processing facility measures the amount of time spent or money wagered by the player at the gaming machine. This information is stored with the player's gaming account as wagered amounts in time and/or money. The gaming operator can then dispense player bonuses based on these amounts. These embodiments permit a player to open a gaming account without performing any special activity, such as filling out a questionnaire or form provided by the gaming operator to obtain an account or 'house' card of the gaming operator.

If a player has already established a separate gaming account with the gaming operator or used another general purpose charge card with the gaming operator, the general purpose charge card can be linked to the earlier gaming account. In this embodiment, the player inserts the general purpose charge card into, or otherwise provides information concerning the general purpose charge card into the gaming machine and selects the option, "Link Accounts". The display on the gaming machine then queries the player for information concerning the other account. The player can provide this information by providing gaming account or general purpose charge card information. In response to a linkage request 144, the processing facility identifies the existing gaming account 150 and links these cards or accounts to the same gaming account 152. Such linkages can also be entered by a representative of the gaming operator or the player at separate computer terminals or kiosks.

Linkage allows winnings or losses from different general purpose charge cards or other cards and accounts to be combined into one gaming account. FIG. 9 illustrates how the information is stored in a gaming account 160 at the processing facility according to one embodiment of this invention. In FIG. 9, the associated data is stored as a variable length record in a computer database, but other implementations of the gaming account are also encompassed by this invention. The gaming account 160 is identified by a gaming account identification 162, such as an account number or the card identification. Linked account identifications 164 are associated with this gaming account. Although the linked account identifications are typically general purpose charge card numbers, the linked account identifications may also be account numbers such as, for example, a frequent flyer account number or another gaming account. The gaming account 160 according to this embodiment is also associated with gaming account status 166, which includes such information as a credit limit 168 for the gaming account and current balances 170 for various subaccounts, for example, the dollar subaccount 172, the bonus points subaccount 174, and the wagering time subaccount 176. Also, although not required, if a player, card or financial institution provides any personal information, for example, name, address, or telephone number, the personal information can also be associated with the gaming account as a player identification 178. In addition, other information 180 can be associated with the gaming account. The gaming account 160 is also associated with the status of the linked accounts 182 which, in turn, are associated with additional information such as the amount of credit approved 184 and the balance 186 with respect to a particular linked account.

Linkage helps establish a credit history of the player and allows the combining of award bonus points. Thus, for example, if a player has a first gaming account opened with

one general purpose charge card which has been awarded 5,000 bonus points and a second gaming account opened with another general purpose charge card which has been awarded 5,000 bonus points, the two gaming accounts can be combined into a single gaming account having 10,000 bonus points.

Another embodiment of this invention allows linkage and game play with other types of exchange, for example, frequent flyer miles. In this embodiment, a player can select the kind of playing credit to be used. For example, the player could elect to play games with money, such as dollars, or with frequent flyer miles. Similar to the entry of the general purpose charge card information, the player need only enter the frequent flyer account number. As discussed above, if the types of exchange are not transferrable, the processing facility separates each type into separate gaming subaccounts of the gaming account. For example, a gaming account may have $50, 10,000 frequent flyer miles for one airline, and 5,000 player bonus points from a casino in three separate subaccounts. If a particular type of subaccount does not exist in the gaming account 160, a new subaccount is added. Since some general purpose charge cards offer bonus points, the gaming account according to this invention can be credited or debited with the dollars as well as the bonus points earned or lost with the credit or debit. Because one account may permit access to money credits and one or more bonus point credits, the player may be queried through the gaming machine to select which type of exchange is desired or which subaccount to use.

In another aspect of this embodiment, the processing facility can also exchange bonus points in one subaccount for another subaccount. For example, if the casino and the airline allow for transfer of gaming bonus points into frequent flyer miles, the processing facility can offer such an exchange as an option to the player.

While the invention has been described in connection with a preferred embodiment, it is not intended to limit the scope of the invention to the particular form set forth but, on the contrary, it is intended to cover such alternatives, modifications, and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

CLAIMS

1. A method of using information concerning a first account maintained at a first institution for use in playing games of chance played on a gaming machine at a location which is remote from and is different from said first institution, comprising the steps of:

causing information concerning said first account to be received by said gaming machine;

accessing a gaming account at a processing facility based on information concerning said first account;

conditioning said gaming machine in accordance with said gaming account to permit plays thereon;

maintaining information about said plays on said gaming machine; and

selectively causing said gaming machine to transmit information respecting said plays to said processing facility for maintaining said gaming account.

2. A method as in claim 1 further comprising the steps of:

requesting a playing credit through said gaming machine based on said first account; and

determining whether to grant said playing credit;

such that said step of conditioning said gaming machine to permit plays thereon is only performed if said playing credit is granted.

3. A method as in claim 1, further comprising the step of:

crediting or debiting one or more non-monetary units to one or more gaming subaccounts of said gaming account for each play on said gaming machine.

4. A method as in claim 1, further comprising the step of:

exchanging one or more units of one subaccount for one or more units of another subaccount.

5. A method as in claim 1, further comprising the steps of:

determining the amount of time said gaming machine is accessed using said gaming account; and

crediting said amount of time to a time subaccount of said gaming account.

6. A method as in claim 3, further comprising the steps of:

determining the amount of money wagered at said gaming machine accessed using said gaming account; and

crediting said amount of money wagered to a wagering subaccount of said gaming account.

7. A method as in claim 1, further comprising the step of:

crediting or debiting monetary units to a gaming subaccount of said gaming account for each play on said gaming machine.

8. A method as in claim 1, wherein said step of accessing a gaming account further comprises the step of:

opening said gaming account at said processing facility.

9. A method as in claim 1, further comprising the step of:

linking one or more accounts maintained by one or more institutions with said gaming account.

10. A method as in claim 9, wherein said step of linking one or more first accounts further comprises the steps of:

causing information concerning said first account to be received by said gaming machine;

selecting a linking option at said gaming machine;

causing information concerning one or more second accounts to be received by said gaming machine; and

relating information concerning said first account and said second accounts to said gaming account.

11. A method as in claim 1, wherein:

said first account is a general purpose charge card

account;

said institution maintains an account for said general purpose charge card and bills the person to whom said charge card is issued; and

further comprises the step of selectively causing said gaming machine to transmit information respecting said net playing credit to said processing facility for use in maintaining said general purpose charge card account.

12. A method as in claim 7, wherein said step of opening a gaming account occurs when said general purpose charge card account is accessed through said processing facility.

13. A method as in claim 1, further comprising the step of:

accessing said gaming account at said processing facility from a machine which is remote from said gaming machine.

14. A method as in claim 13, wherein said step of accessing a gaming account from said machine which is remote from said gaming machine further comprises the step of:

opening said gaming account at said processing facility.

15. A method as in claim 1, further comprising the step of:

selecting an accessing option for said gaming account, said option selected from the group consisting of: requesting credit, requesting account linkage, requesting a wagering unit, requesting activity monitoring and requesting changes to information stored in said gaming account.

16. A method as in claim 15, wherein said option is a default option automatically selected when plays are performed on said gaming machine without an explicit selection.

17. An apparatus for using information concerning a first account maintained at a first institution for enabling games of chance to be played on a gaming machine at a location which is remote from and is different from said first institution, comprising:

means for causing information concerning said first account to be received by said gaming machine;

means for accessing a gaming account at a processing facility based on information concerning said first account;

means for conditioning said gaming machine in accordance with said gaming account to permit plays thereon;

means for maintaining information about said plays on said gaming machine; and

means for selectively causing said gaming machine to transmit information respecting said plays to said processing facility for maintaining said gaming account.

18. An apparatus as in claim 17 further comprising:

means for requesting a playing credit through said gaming machine based on said first account; and

means for determining whether to grant said playing credit.

19. An apparatus as in claim 17, further comprising:

means for crediting or debiting one or more wagering units to one or more gaming subaccounts of said gaming account for each play on said gaming machine.

20. An apparatus as in claim 17, further comprising:

means for exchanging one or more units of one subaccount for one or more units of another subaccount.

21. A apparatus as in claim 17, further comprising:

means for determining the amount of time said gaming

machine is accessed using said gaming account; and

means for crediting said amount of time to a time subaccount of said gaming account.

22. An apparatus as in claim 17, further comprising:

means for determining the amount of money wagered at said gaming machine accessed using said gaming account; and

means for crediting said amount of money wagered to a wagering subaccount of said gaming account.

23. An apparatus as in claim 17, wherein said means for accessing a gaming account further comprises:

means for opening said gaming account at said processing facility.

24. An apparatus as in claim 17, further comprising:

means for linking one or more accounts maintained by one or more institutions with said gaming account.

25. An apparatus as in claim 24, wherein said means for linking further comprises:

means for causing information concerning said first account to be received by said gaming machine;

means for selecting a linking option at said gaming machine;

means for causing information concerning one or more second accounts to be received by said gaming machine; and

means for relating information concerning said first account and said second accounts to said gaming account.

26. An apparatus as in claim 17, wherein:

said first account is a general purpose charge card account;

said institution maintains an account for said general purpose charge card and bills the person to whom said charge card is issued; and

further comprises means for selectively causing said

gaming machine to transmit information respecting said net playing credit to said processing facility for use in maintaining said general purpose charge card account.

27. An apparatus as in claim 17, further comprising:

means for accessing said gaming account at said processing facility from a machine which is remote from said gaming machine.

28. An apparatus as in claim 27, wherein said means for accessing a gaming account from said machine which is remote from said gaming machine further comprises:

means for opening said gaming account at said processing facility.

29. An apparatus as in claim 17, further comprising means for selecting an accessing option for said gaming account, said option selected from the group consisting of: requesting credit, requesting account linkage, requesting a wagering unit, requesting activity monitoring and requesting changes to information stored in said gaming account.

30. An apparatus as in claim 29, wherein said option is a default option.

31. An apparatus according to claim 19, wherein said wagering unit is a non-monetary unit.

32. An apparatus according to claim 31, wherein said wagering unit is selected from the group consisting of: frequent flyer miles, credit card bonus points, customer bonus points and sample gaming points.

33. An apparatus according to claim 17, wherein said gaming account comprises:

a gaming account identification;

one or more linked account identifications; and
gaming account status information.

34. An apparatus according to claim 33, wherein said gaming account status information further comprises:
a credit limit;
one or more subaccounts;
a player identification; and
other information.

35. An apparatus according to claim 34, wherein two or more of said subaccounts are represented in different wagering units.

36. An apparatus according to claim 33, wherein said gaming account further comprises:
one or more linked account status informations, each of said informations further comprising a credit limit and a balance.

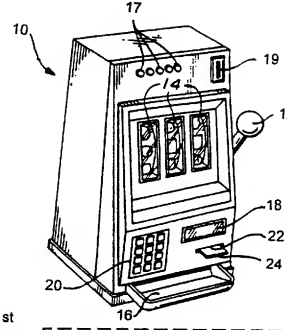

FIG. 1

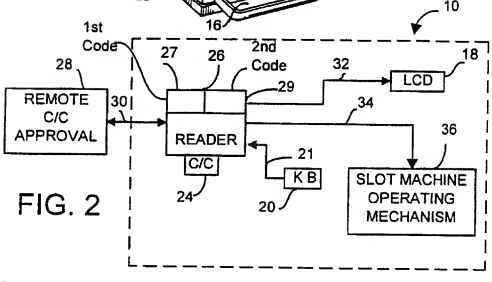

FIG. 2

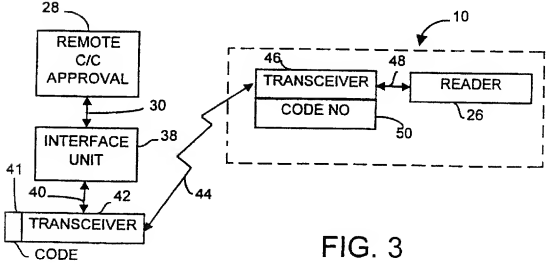

FIG. 3

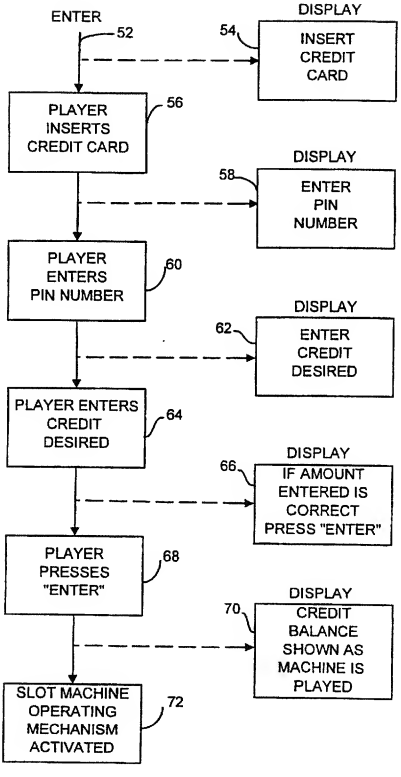
ENTER
52
DISPLAY
54
INSERT CREDIT CARD
PLAYER INSERTS CREDIT CARD
56
DISPLAY
58
ENTER PIN NUMBER
PLAYER ENTERS PIN NUMBER
60
DISPLAY
62
ENTER CREDIT DESIRED
PLAYER ENTERS CREDIT DESIRED
64
DISPLAY
66
IF AMOUNT ENTERED IS CORRECT PRESS "ENTER"
PLAYER PRESSES "ENTER"
68
DISPLAY
70
CREDIT BALANCE SHOWN AS MACHINE IS PLAYED
SLOT MACHINE OPERATING MECHANISM ACTIVATED
72

FIG. 4

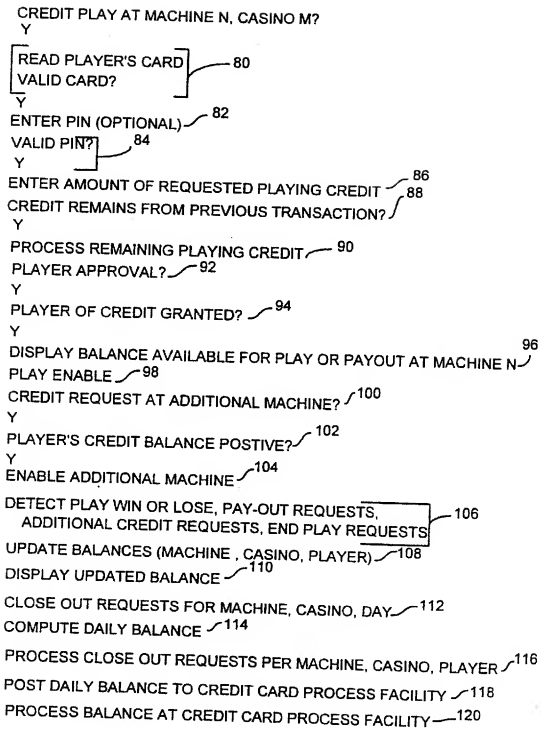
CREDIT PLAY AT MACHINE N, CASINO M?
Y
READ PLAYER'S CARD
VALID CARD?
80
Y
ENTER PIN (OPTIONAL)
82
VALID PIN?
84
Y
ENTER AMOUNT OF REQUESTED PLAYING CREDIT
86
CREDIT REMAINS FROM PREVIOUS TRANSACTION?
88
Y
PROCESS REMAINING PLAYING CREDIT
90
PLAYER APPROVAL?
92
Y
PLAYER OF CREDIT GRANTED?
94
Y
DISPLAY BALANCE AVAILABLE FOR PLAY OR PAYOUT AT MACHINE N
96
PLAY ENABLE
98
CREDIT REQUEST AT ADDITIONAL MACHINE?
100
Y
PLAYER'S CREDIT BALANCE POSTIVE?
102
Y
ENABLE ADDITIONAL MACHINE
104
DETECT PLAY WIN OR LOSE, PAY-OUT REQUESTS, ADDITIONAL CREDIT REQUESTS, END PLAY REQUESTS
106
UPDATE BALANCES (MACHINE , CASINO, PLAYER)
108
DISPLAY UPDATED BALANCE
110
CLOSE OUT REQUESTS FOR MACHINE, CASINO, DAY
112
COMPUTE DAILY BALANCE
114
PROCESS CLOSE OUT REQUESTS PER MACHINE, CASINO, PLAYER
116
POST DAILY BALANCE TO CREDIT CARD PROCESS FACILITY
118
PROCESS BALANCE AT CREDIT CARD PROCESS FACILITY
120

FIG. 5

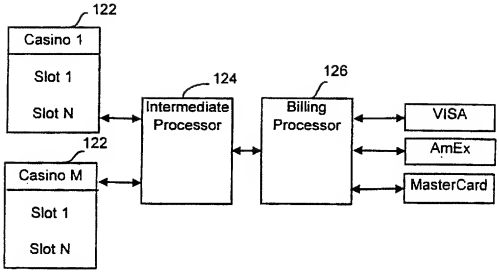
122
Casino 1
Slot 1
Slot N
122
Casino M
Slot 1
Slot N
124
Intermediate Processor
126
Billing Processor
VISA
AmEx
MasterCard

FIG. 6

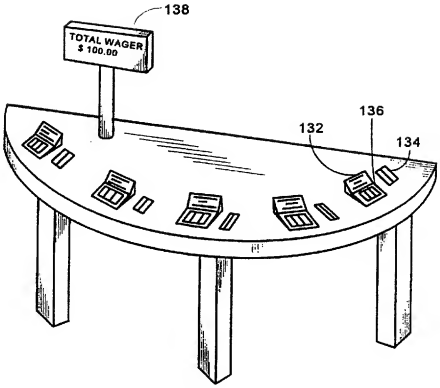

FIG. 7

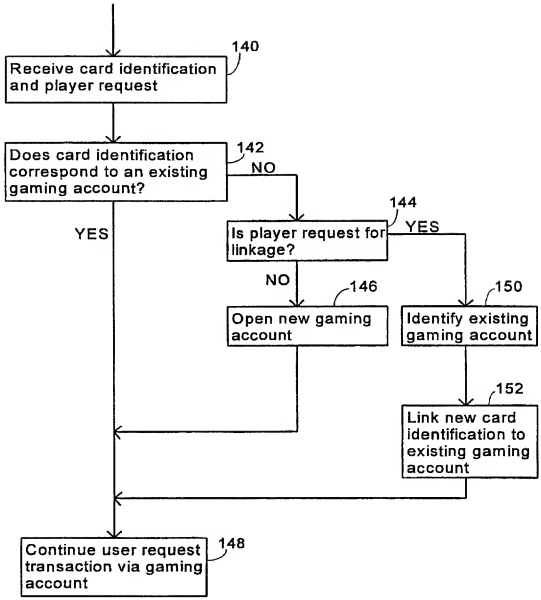
Receive card identification and player request
140
Does card identification correspond to an existing gaming account?
142
NO
YES
Is player request for linkage?
144
YES
NO
Open new gaming account
146
Identify existing gaming account
150
Link new card identification to existing gaming account
152
Continue user request transaction via gaming account
148

FIG. 8

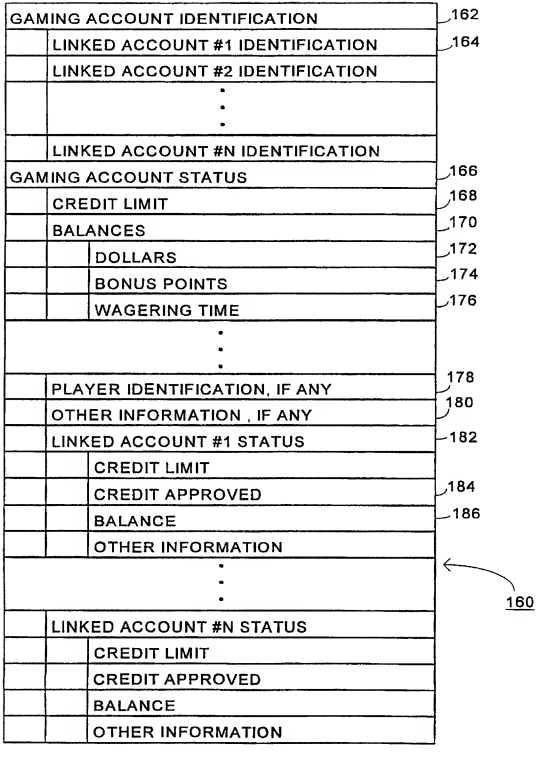
GAMING ACCOUNT IDENTIFICATION
LINKED ACCOUNT #1 IDENTIFICATION
LINKED ACCOUNT #2 IDENTIFICATION
LINKED ACCOUNT #N IDENTIFICATION
GAMING ACCOUNT STATUS
CREDIT LIMIT
BALANCES
DOLLARS
BONUS POINTS
WAGERING TIME
PLAYER IDENTIFICATION, IF ANY
OTHER INFORMATION , IF ANY
LINKED ACCOUNT #1 STATUS
CREDIT LIMIT
CREDIT APPROVED
BALANCE
OTHER INFORMATION
LINKED ACCOUNT #N STATUS
CREDIT LIMIT
CREDIT APPROVED
BALANCE
OTHER INFORMATION
162
164
166
168
170
172
174
176
178
180
182
184
186
160

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/16561

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 15/44, 15/21
US CL :235/380

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 235/375, 380; 902/23; 273/138.1; 364/412; 463/25, 29, 41

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y	US 5,457,306 A (LUCERO) 10 October 1995 (10/10/95), see the entire document.	1, 2, 11, 13, 17, 18, 26, 27 ---------- 3-10, 12, 14-16, 19-25, 28-36
Y	US 5,038,022 A (LUCERO) 06 August 1991 (06/08/91), see the entire document.	1-36

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 11 OCTOBER 1997	Date of mailing of the international search report 27 OCT 1997
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer F. L. EVANS Telephone No. (703) 308-0956

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(54) **Gaming machine change system.**

(57) Providing change to gaming machine players is facilitated by the use of a change card having a memory storing a cash value which a change person can use to input a credit into a gaming machine in exchange for cash from a player. A game monitor unit having a card reader, a keypad and a display is attached to the gaming machine and can be used to authorize and transfer a selected cash value to the credit meter of the gaming machine from the change card. Cash values along with authorizations and security codes are input to the change card at a change station utilizing a similar monitor unit. Financial controls and security can be enhanced by transmitting data relating to change card transactions from the gaming machine and the change system to a central data system.

EP 0 589 545 A2

Technical Field

The invention relates to the field of coin operated gaming machines and more particularly to the systems for providing change or credit to operate gaming machines.

Background of the invention

At present there are a number of methods of providing a player with either credit or coins for playing gaming machines including bill acceptor mechanisms as described in U.S. Patent 5,102,136 and by credit card readers attached to the machines. However, most gaming machines are not equipped with bill acceptors and in many cases players do not possess or want to use a credit card with a gaming machine. As a result many casinos employ a number of change persons who circulate in the gaming machine area to exchange coins or tokens for currency bills. In order to provide change for players the change person must normally carry a large number of coins of varying denominations. Very often a casino will have gaming machines that accept for example nickels, quarters, fifty cent pieces or dollar coins as well as dollar, five dollar, twenty five dollar or one hundred dollar tokens. In addition to the inherent problems of carrying about a large amount of change on the casino floor, this method of supplying players with change complicates the casinos accounting procedures and increases security concerns. Further, this method requires a substantial inventory of coins to be kept on hand in the casino to supply the players and the machines.

Summary of the Invention

It is therefore an object of the invention to provide a change system where a change person is provided with a change card having a memory for storing an amount of money and each gaming machine is provided with a card reader and a keypad so that the change person can enter an amount of credit into the machine in exchange for cash received from a player.

It is a further object of the invention to provide a change system including an game monitor unit connected to a gaming machine having a cardreader, a display and a keypad for receiving a change card having a memory in which an initial cash value is entered by a change station. The keypad can be used by a change person to enter a selected cash value into the gaming machine by entering a personal identification number corresponding to an identification number in the card memory and then the selected cash value. In order to maintain security of the change card, the change station can include a station monitor unit having a keypad, a display and a card reader permitting the change person to input the identification number into the card memory. The display can also be used to display the change persons name in association with the input of the initial cash value.

It is an additional object of the invention to provide a change system having a game monitor unit connected to a gaming machine along with a change card having a memory containing cash values and a personal identification number where a change station can be used to input an initial cash value into the card memory along with the identification number and where the card is automatically deactivated after a predetermined amount of time. The card can also be deactivated by the change station or by other components of the system. A cancel function can additionally be included to permit the change person to use the game monitor unit to transfer a cash value that has been transferred to the gaming machine back to the card memory.

It is a further object of the invention to provide a change system having a game monitor unit connected to a gaming machine, a change card having a memory for storing cash values and a change station which includes a station monitor unit having a keypad, a display and a card reader along with a station computer having a keyboard and a computer display where an initial cash value is input to the card memory by the computer keyboard. To enhance security the station monitor unit is not accessible by, nor is it visible to, a cashier operating the station computer and the station monitor unit can be used by a change person to input a confidential personal identification number into the card memory. The identification number is then used to authorize the input of a selected cash value to the gaming machine though use of the game monitor unit keypad.

Another object of the invention is to provide a gaming machine change system where a change card having a memory for holding cash values along with an identification number can be used with a game monitor unit connected to a gaming machine that includes a keypad, a display and a card reader to input a selected cash value to the gaming machine and where an initial cash value and the identification number are input to the card memory by a change station. The system can also include a central data system operatively connected to both the gaming machine and the change station where the initial cash values are recorded in the central data system for each card and where the central data system is effective to enter a password into the card memory that is effective to prevent the game monitor unit from accepting a cash value from the card unless the password is

present in the card memory. Additionally the central data system can be used to record transactions in parallel with the card.

Brief Description of the Drawing

Fig. 1 is a block diagram of a gaming machine change system according to the invention.

Detailed Description of the Invention

Fig. 1 provides an illustration of the preferred embodiment of a change system that can be used with a variety of different types of gaming machines and which eliminates the requirement that change persons physically carry coins or tokens. A representative example of a gaming machine is shown at 10 which includes a housing 12, a coin payout tray 14, game control buttons 16-20, a control handle 22 and a coin input slot 24. Also included is a game display 26 which can be a set of rotating reels in a slot machine or a video display in a video gaming machine. Attached to the housing 10 is a game monitor unit 28 that includes a 12 character dot matrix display 30, a keypad 32 and a combined magnetic-smart card reader 34. Also included is a three color LED 36 and a sound module 38. A more detailed description of an monitor unit that is suitable for use as the game monitor unit 28 is provided in the co-pending U.S. patent application Serial No. 07/763,924 filed on September 23, 1991 which is assigned to the assignee of this application. The monitor unit 28 includes a microprocessor (not shown) that is in direct communication with the gaming machine's 10 microprocessor (also not shown). For simplicity only one gaming machine 10 is shown in Fig. 1 but it will be understood that normally there will be a number of gaming machines on the casino floor equipped with game monitor units 28.

Included in the change system of Fig. 1 is a change station as indicated by the dashed line 40. Contained in the preferred embodiment of the change station 40 is a computer 42 having a video display 44, a keyboard 46 and a card reader 47. The computer 42 can be a commercially available personal computer and can be used to perform additional functions in a casino cashier booth where the change station 40 will normally be located. It should be noted that instead of the card reader 47, a third monitor unit (not shown) similar to the monitor unit 28 including a keyboard and a display can be used to perform the card reading functions for the computer 42. Operatively connected by a line 48 to the computer 42 is a change station monitor unit 50. The change station monitor unit 50 can be similar in construction to the gaming machine monitor unit 28 and includes a alpha-numeric display 52, a keypad 54, a card reader 56, and a LED 58. A wall or screen 59 is provided between the computer 42 and the change system monitor unit 50 in order to prevent a booth cashier operating the computer 42 from gaining access to or observing the display 52 on the change station monitor unit 52.

Another element of the preferred embodiment of the change system of Fig. 1 is a gaming machine central data system 60. Such data systems are typically installed in casinos and include a data processing system which is in communication with the gaming machines on the casino floor in order to provide a variety of centralized accounting and security functions relating to the operation of the gaming machines. In the embodiment of the Invention shown in Fig. 1 the central data system 60 is in communication with the gaming machine 10 and the computer 42 as illustrated by lines 62 and 64 respectively. It should be noted that the system as described above can be used for a variety of environments including video lottery systems.

An important element of the change system is a change card 66 which is preferably a smart card and as such includes a microprocessor 68, a non-volatile random access memory 70 and an monitor circuit 72. Although the preferred embodiment of the card 66 includes the microprocessor 68, it will be appreciated the many of the functions of system can be preformed with a card having only a memory 70. Communication to external devices is facilitated by the monitor circuit which includes a number of contacts 74. Preferably the contacts 74 conform to an industry standard such as ISO/DIS 78161/1 and 78161/2. The contacts 74 are configured to engage receptacles in the card readers 34 and 56 thereby permitting communication between the card 66 and the monitor units 28 and 50 as indicated by a pair of arrows 76 and 78. An example of a suitable card for use with gaming machines is provided in the co-pending U.S. patent application Serial No. 07/247,983, filed on September 22, 1988 and assigned to the Assignee of this application.

Other data processing elements can be associated with the change system of Fig. 1 including a cage data processing system 84 which is shown connected to the computer 42 by a line 86 and a casino data system 88 that is connected to the cage system 84 by a line 90. The casino data system 84 is also connected as illustrated by a line 92 to the central data system 60.

Operation of the change card system of Fig. 1 is described below in terms of its operation in a casino environment. Most casinos employ change persons for providing players with coins or tokens to play gaming machines in exchange for cash. In an illustrative example of the operation of the sys-

tem, a change person would receive a non-active change card 66 at the beginning of her shift from a booth cashier at the change station 40. The change person then inserts her change card 66 into the card reader 56 of the change station monitor unit 50. The change person then logs on to the central data system 60 by using the keypad 54 and the display 52 to enter a personal identifier such as her casino license number. This information is transmitted via the change station computer 42 to the central data system 60. Alternatively, the booth cashier can enter the personal identifier via the computer keyboard 46. After recognition of the personal identifier by the central data system 60, the booth cashier utilizing the computer 42 enters an initial cash value into the card memory 70. The initial cash value is transmitted from the computer 42 to the monitor unit 50 which in turn transmits this value to the card memory 70. Limits on the maximum value of the initial cash value, for example $800, can be imposed by the central data system or the computer 42 and these limits can be programmed into the system as a function of the class of change personnel or even by individual names. So that the change person can verify the amount input into the memory 70 and her name, the monitor unit 50 will display the amount and the change persons name on the display 52. To improve security, the booth cashier can use the card reader 47 to transmit from a cashier's or management card (not shown) a booth identification number or a cashier identification number to the card memory 70. In this manner the individual or location which issued the card 66 can be identified in order to detect unauthorized issuance of change cards 66.

Upon verification of her name and the initial amount loaded into the card 66, the change person will use the keypad 54 to enter a personal identification number into the memory 70. This identification number is selected by the change person and is known only to the change person. The processor 68 in the card 66 is programmed to prevent activation of the card unless an acceptable identification number has been entered into the memory 70. To increase reliability, the processor 68 can be programmed to prevent activation of the card 66 until the identification number has been entered a second time by the change person. Optionally, the identification number can also be verified and recorded by the central data system 60 and a verification signal transmitted from the central data system to the card 66 to activate the card 66. The preferred identification number is a four digit number which will be easy for the change person to remember. However, in order to increase card security, it is considered desirable that the station monitor 50 or the processor 68 be programmed not accept certain "weak" identification numbers such as 1111 or 9999. To further increase security, the central data system 60 will also load a daily password into the card memory 70 after the identification number has been verified. Preferably, the password, which is stored in the central data system 60, would not be accessible to either the change person or change station personnel.

After the change card 66 has been loaded with the initial cash value and the identification number, it is removed from the card reader 56 by the change person. The change card 66 is then ready for use by the change person to provide players with change to operate the gaming machine 10.

When a player requests change from the change person to play the machine 10, the change person will insert the change card 66 into the card reader 34 and enter her identification number into the monitor unit 28 utilizing the keypad 32. If the identification number keyed in matches the number in the card memory 70, the password from the card memory 70 will be accessed by the monitor unit 28 and transmitted to the central data system 60 for verification. After verification by the central data system 60, the monitor unit 28 will display an enter message such as "Transfer 0000" on the display 30. The change person after agreeing with the player on an amount and receiving that amount of cash from the player, will use the keypad 32 to enter that selected cash value into the monitor unit 28. The selected cash value is then transmitted to the central data system 60 where limit and reasonableness checks on this value can be performed by the system 60 or preferably by the game monitor unit 28. For example, selected values which are less than the play denomination of the game 10 would not be permitted by the central data system 60. In the case of a $25 machine for instance, a transfer of $10 from the card 66 would be rejected by the system 60. Also, each gaming machine denomination will have a maximum transfer limit established in the central data system 60 or the game monitor unit 28. Additionally, it is considered desirable that a transfer of a selected cash value that would put the gaming machine 10 into a hand pay condition not be permitted. In order to perform this check either the central data system 60, the game monitor unit 28 or the gaming machine 10 would compare the sum of the credits in the machine 10 and the selected cash value to the lowest hand pay condition amount for that machine 10. In one embodiment of the invention, the booth cashier can use the computer 42 to impose limits on any one cash transaction and these limits are stored in the card memory 70 or alternatively by the central data system 60. Should the selected cash value not conform to the above limits or criteria, an appropriate message will be displayed on the dis-

play 30 and the change person will have the option to use the keypad 32 to alter the selected cash value to be transferred to the machine 10.

Once the selected cash value passes the above checks, this amount is added to any existing amount in a credit register (not shown) in the gaming machine 10 and displayed on a credit meter 76 located on the machine 10. The player then has the option of playing the machine 10 or obtaining change by hitting the cashout control button 16. To facilitate casino control of the change cards 66 and operation of the gaming machines, the central data system 60 can include an operator terminal 78 equipped with a display 80 and a keyboard 82. For example, the terminal 80 can be used to display the amount transferred from the card 66 to the machine 10 and the equivalent machine credits as long as the card 66 is in the reader 34. The terminal 78 can also display the current cash value in the card memory 70 as well as the requested amounts to be transferred to the machine 10 and any problems with the transfer as described above. It should be noted however, that due to the basic integrity of the change card 66, especially where encryption algorithms are used to encrypt data in the memory 70 and data transfers, it is not necessary that the central data system 60 approve the cash value transfers described above but it is desirable that a record of the transfers be maintained in the system 60.

In the event that the change person transfers a cash value to the machine 10 different from the amount tendered by the player, the monitor 28 is programmed to respond to a predetermined sequence of key inputs from the keypad 32 to cancel the transfer and transfer this amount from the credit register of the machine 10 to the card memory 70. Preferably this cancel function is disabled after the first credit is played on the machine 10.

When the cash value in the card memory 70 is decreased below a predetermined amount, the change person can be notified by a number of different methods. First, the monitor unit 28 can be programmed to display a low balance message on the display 30 when the card is inserted in the card reader 34. Alternatively, the monitor unit 28 can be programmed to blink the LED 36 red or emit a characteristic sound from the speaker 38. The change person can also query the cash value in the card memory 70 at any time by inserting the card in either monitor unit 28 or 50 and pressing a predetermined sequence of keys on the keypads 32 or 54.

To replenish the cash balance in the memory 70, the change person returns to the change station where the booth cashier counts the cash collected by the change person and enters this amount into the computer 42. The change person then inserts her card 66 into the card reader 56 and establishes its authenticity by entering the identification number via the keypad 54. The amount of cash collected and the cash value in the card memory 70 are transmitted to the central data system 60 and recorded. If the resulting cash value in the card memory 70 plus the cash collected is not equal to the initial cash value, the booth cashier is notified by the central data system 60. Otherwise the value of the cash collected is transmitted though the monitor unit 50 to the card 66 where the processor 68 adds it to the value of the cash remaining in the memory 70. In order to permit the change person to verity the amount entered into the memory 70, the monitor unit 50 scrolls the change person's name and the amount entered on the display 52. After verification, the change person removes the card 66 from the card reader 56 and is ready to resume making change for the casino customers.

When the change person completes her shift, she returns to change station 40 where the booth cashier counts the cash collected by the change person. The change person inserts the change card 66 into the reader 52 and enters her identification number via the keypad 54. The remaining amount in the memory 70 is transmitted to the computer 42 and to the central data system 60 where the central data system 60 records the amount of cash collected by the booth cashier with the amount from the memory 70 and alerts the booth cashier if there is a discrepancy on the display 44. At this point the change person can deactivate the change card 66 by entering her identification number or another code into the monitor unit 50 by the keyboard 52. A deactivation message is then displayed on the displays 44 and 52 and the change person then returns the card 66 to the booth cashier. In the event that the change card 66 is lost or otherwise not returned to the change station 40, deactivation of the change card 66 is automatically accomplished by the periodic change of the password by the central data system 60 or alternatively the processor 68 can be programmed to deactivate the card 66 after a predetermined time.

Casino accounting and security is enhanced by the above described system since each transaction involving the change card 66 is recorded by the central data system 60. For example it is possible to produce a comprehensive shift report for each change card 66 including the name of the change person who received the card 66, cash deposited in the card memory 70 and the identification of each gaming machine 10 along with the amount of cash or credits transferred to the machine. However, in the preferred embodiment of the system the change person's personal identification number

is not directly accessible from the central data system 60 or the computer 42 so that the only person that has access or knowledge of this number is the change person. In addition, the physical layout of the change station 40 should be such that neither the booth cashier nor any other change station personnel can gain access to or see the monitor unit 50 or its display 52 as illustrated in Fig. 1 by the wall 59. In the event that the change person should forget the identification number, it is possible for casino personnel to use the change station computer 42 or another computer connected to a monitor unit such as 28 or 50 to determine the identification number and gain access to the cash balance on the card 66. For example, by using a relatively high speed computer such as the central data system 60, each combination of a four digit identification number can be tested for a match with the identification number on the card 66 in a reasonable amount of time.

In the embodiment of the invention shown in Fig. 1 the cage system 84 is used to integrate the accounting of the change station 40 with the accounting, security functions and player tracking performed in the cashier's booth. For example, the cage system 84 can be used for reconciling cash transactions in the cashier's booth including transactions performed in connection with the change station 40. The casino data system 88 receives data from the various cashier's booths and the central data system 60 as well as other casino operations in order to provide casino management with comprehensive information and reports relating to the overall operation of the casino.

Claims

1. A gaming machine change system comprising:
   a gaming machine;
   a change station;
   a change card including a card memory for storing a cash value;
   a game monitor unit operatively connected to said gaming machine including a first card reader for receiving said change card, first data transfer means for transferring a selected cash value from said card as a credit to said gaming machine, a keypad for selecting said selected cash value and a first display for displaying said selected cash value; and
   a station monitor unit operatively connected to said change station including a second card reader for receiving said change card and a second data transfer means for transferring to said card memory an initial cash value to said card memory.

2. The system of Claim 1 wherein said card memory includes an identification number and said game monitor unit includes authorization means for receiving an identification input from said keypad and authorizing the transfer of said selected cash value if said identification input matches said identification number.

3. The system of Claim 2 wherein said identification number is at least a four digit number.

4. The system of Claim 2 wherein said identification number is known only to one change person.

5. The system of Claim 2 wherein said station monitor unit includes a keypad and input means for permitting a change person to input said identification number to said card memory via said second keypad.

6. The system of Claim 5 wherein said input means requires the person to input said identification number at least twice to activate said identification number in said card memory.

7. The system of Claim 2 including means to prevent acceptance of a plurality of predetermined weak identification numbers from being stored in said memory.

8. The system of Claim 2 wherein said station monitor unit additionally includes a second display for displaying said initial cash value.

9. The system of Claim 8 wherein said second display additionally displays the name of the change person associated with said initial cash value.

10. The system of Claim 2 wherein said authorization means includes means for permitting a change person to change said identification number at predetermined intervals.

11. The system of Claim 1 wherein said selected cash value must be at least equal to the denomination of said gaming machine.

12. The system of Claim 1 wherein said gaming machine is a credit gaming machine and includes means to prevent said transfer of said selected cash value if said selected cash value would put said gaming machine into a hand paid condition.

13. The system of Claim 1 wherein said first data transfer means includes cancel means for

transferring said selected cash value from said gaming machine to said card memory.

14. The system of Claim 1 wherein said first data transfer means responds to an input from said game monitor unit keyboard to display said selected cash value on said first display.

15. The system of Claim 1 wherein said first machine monitor unit includes an indicator light and said light is flashed when said selected cash value is below a predetermined amount.

16. The system of Claim 1 wherein said first machine monitor unit includes sound means for generating a distinctive sound when said selected cash value is below a predetermined amount.

17. The system of Claim 5 wherein said second input means additionally includes means for inputing said initial cash value into said card memory.

18. The system of Claim 16 wherein said second monitor means displays a change person's name and said initial cash amount value on said second display after said initial cash value has been input into said memory.

19. The system of Claim 1 wherein said change card includes deactivation means for automatically deactivating said change card after a predetermined time.

20. The system of Claim 19 wherein said deactivation occurs within twenty-four hours of activation of said change card.

21. The system of Claim 20 wherein said deactivation occurs approximately eight hours after activation of said change card.

22. The system of Claim 5 wherein station monitor unit includes means to deactivate said change card via said station monitor unit keypad.

23. The system of Claim 20 wherein said deactivation occurs only after the person enters his identification number on said station monitor unit keypad.

24. The system of Claim 5 wherein said change station additionally includes a change station computer having a computer display, a computer keyboard and a memory operatively connected to said station monitor unit and wherein said initial cash value input to said change card is input into said card memory via said computer keyboard.

25. The system of Claim 24 wherein said station monitor unit is not accessible to a cashier operating said change station computer.

26. The system of Claim 24 wherein said change station computer includes means for permitting a cashier to input cash received from a change person by said computer keyboard into said computer memory and display it on said computer display.

27. The system of Claim 1 additionally including a central data system operatively connected to said gaming machine and said change station wherein said selected cash values and said initial cash values are stored in said central data system.

28. The system of Claim 27 wherein said card memory includes an identification number and said game monitor unit includes authorization means for receiving an identification input from said game monitor unit keypad and authorizing the transfer of said selected cash value if said identification input matches said identification number.

29. The system of Claim 28 wherein said selected cash value and said initial cash value are stored in said central data system in connection with said identification number.

30. The system of Claim 29 wherein said central data system includes password means for inputing a password into said card memory through said station monitor unit and for inhibiting said first data transfer means unless said password is in said card memory.

31. The system of Claim 30 wherein said password is not accessible for display by said game monitor unit or said change station

32. The system of Claim 30 wherein said password means changes said password at predetermined time intervals.

33. The system of Claim 27 wherein said central data system includes a central display for displaying said selected cash value and said initial cash value while said change card is inserted in said first card reader.

34. The system of Claim 33 wherein said central data system includes means for indicating on

said central display when said cash value in said card memory is below a predetermined value.

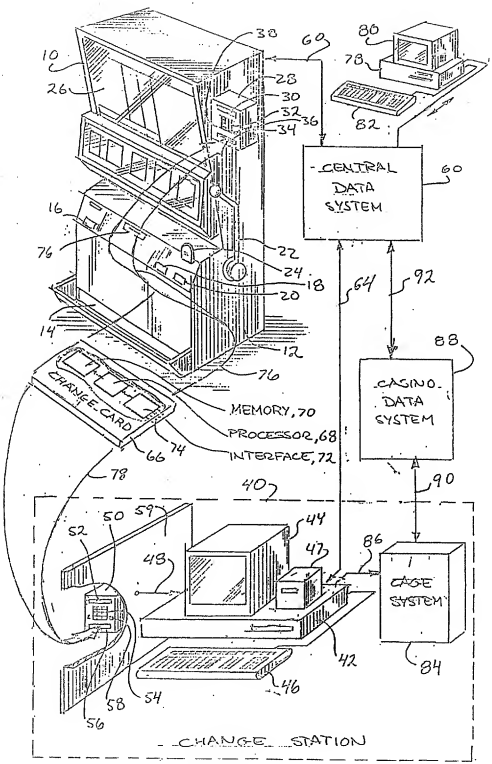
35. The system of Claim 27 wherein said game monitor unit includes an indicator light and said central data system includes means for activating said indicator light when said cash value in said card memory is below a predetermined value.

36. The system of Claim 24 wherein said initial cash values are entered by said computer keyboard and displayed on said computer display.

37. The system of Claim 36 including means for permitting a cashier to input an amount equal to the cash received from a change person by said computer keyboard into said card memory and display it on said computer display.

38. The system of Claim 24 additionally including a cage system operatively connected to said change station computer for receiving information from said change station computer including said initial cash value and cash received from a change person.

39. The system of Claim 38 wherein said cage system is operatively connected to a casino data system and include means for transmitting information including said initial cash value and said cash received from the change person to said casino data system.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CHANGE STATION

FIG. 1

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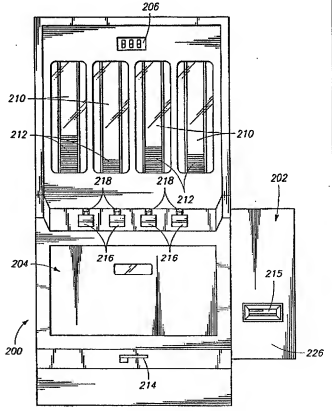
(57) Abstract

A gaming machine (200) and game coupons (100) which allow an operator to redeem winning game coupons by inserting them directly into the gaming machine rather than by taking them to a cashier. The game coupons have machine-readable prize codes (114, 120) which represent a number of prize game credits. The gaming machine includes a bill validator (202) for accepting currency (244) and winning game coupons (248) from the operator. It also includes a code reader (224) for reading the coupon prize codes as the coupons are inserted. The gaming machine issues game credits to the player depending on the prize codes of the submitted game coupons. The gaming machine also incorporates a fraud prevention scheme. Each winning coupon is coded with a unique coupon identification code. The code reader records the coupon identification code of each winning coupon as it is submitted. Detected duplicate coupon identification codes are rejected.



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DK	Denmark	**MD**	Republic of Moldova	**UA**	Ukraine
ES	Spain	**MG**	Madagascar	**US**	United States of America
FI	Finland	**ML**	Mali	**UZ**	Uzbekistan
FR	France	**MN**	Mongolia	**VN**	Viet Nam
GA	Gabon				

DESCRIPTION

GAMING MACHINE AND COUPONS

Technical Field

This invention relates to methods and systems for operating automated gaming machines such as pull-tab machines.

Background Art

Automated gaming devices or machines are manufactured in a great variety of types. A pull-tab machine is one such type of gaming machine. A player purchases game coupons from a pull-tab machine by feeding it cash or game tokens. Each game coupon has a hidden display area which can be revealed to indicate whether the game coupon is a winning coupon. Winning coupons can be redeemed for cash winnings, game tokens, or other prizes.

The game coupons themselves are commonly packaged in game coupon sets. Each game coupon set comprises a known total of individual game coupons and a known number of winning game coupons within the total. Individual game coupons usually have two plies: a facing ply and a backing ply. Serrated windows or tabs are formed in the facing ply of the coupon. The backing ply is imprinted with game symbols or other representations beneath the tabs. To determine whether an individual game coupon is a winning coupon, a player peels back the tab to reveal the game symbols. Winning game coupons are redeemed for cash or game coupons with a cashier.

Fig. 1 shows a typical prior art pull-tab machine, generally designated by the reference numeral 10. Pull-tab machine 10 comprises generally a coupon vendor 12 and a bill or currency validator 14, also shown schematically in Fig. 2.

Coupon vendor 12 comprises one or more coupon magazines 16, each receiving a vertical stack of pull-tab game coupons 18. Coupon vendor 12 further comprises a coupon dispensing slot 20 through which pull-tab coupons are dispensed. Bill validator 14 is mounted along the side of coupon vendor 12. Bill validator 14 is a standard and widely available device used in many types of vending machines for accepting and verifying denominated currency. Bill validator 14 issues a sequence of electronic pulses to coupon vendor 12 in response to receiving valid currency. Each pulse represents a specified cash amount or a specified number of game credits. Coupon vendor 12 accepts the electronic pulses from bill validator 14, crediting the player with game credits in response. The number of issued game credits is sometimes indicated by a

numeric display 19. Thereafter, coupon vendor 12 dispenses individual game coupons at the player's command to the extent of the accumulated game credits.

Coupon vendor 12 includes a selection dispensing button 24 corresponding to each coupon magazine 16. Indicator lamps 26 are mounted above selection dispensing buttons 24 to indicate when the corresponding coupon magazines are available for selection. A player spends an issued game credit by depressing one of selection dispensing buttons 24, causing a game coupon to be dispensed from the corresponding coupon magazine 16. For each button depressed, the machine dispenses an individual game coupon and simultaneously subtracts a game credit from the player's total. Some machines dispense multiple game coupons if the corresponding selection dispensing button is held down, providing the player has enough game credits.

Each of coupon magazines 16 is typically loaded with a single set of game coupons. Since the coupon magazines and the game coupons stacked therein are usually visible, both players and the machine operator may monitor winnings to predict the odds as the number of coupons in each magazine is depleted. For instance, as the number of undispensed coupons decreases without a winner, the odds of winning become significantly greater. The number of winning coupons in each game coupon set, and their winning values, are usually known to players.

After receiving winning coupons, players must physically take them to the proprietor or cashier of the gaming establishment for redemption. An important disadvantage of a gaming machine such as that described above is that significant time and effort are consumed, by both the player and the proprietor of a gaming establishment, in redeeming winning game coupons for cash. Furthermore, during the time it takes to cash in a winning coupon a player sometimes loses interest in the game. The invention described below remedies this problem, allowing a player to continue a game without interruption while utilizing winning game coupons to purchase additional game credits.

Brief Description of the Drawings

Preferred embodiments of the invention are described below with reference to the accompanying drawings:

Fig. 1 is a front view of a pull-tab gaming machine in accordance with the prior art;

Fig. 2 is a simplified block diagram of a pull-tab machine in accordance with the prior art;

Fig. 3 is a front view of a pull-tab game coupon in accordance with a preferred embodiment of this invention;

Fig. 4 is a playing portion of a pull-tab game coupon, the playing portion having been detached from the pull-tab game coupon of Fig. 3;

Fig. 5 is a front view of a game set-up coupon in accordance with a preferred embodiment of this invention;

Fig. 6 is a front view of a pull-tab gaming machine in accordance with a preferred embodiment of the invention;

Fig. 7 is a block diagram of the pull-tab gaming machine of Fig. 6;

Fig. 8 is a vertical cross-sectional view showing a bill validator receiving throat and bezel in accordance with a preferred embodiment of the invention;

Fig. 9 is a horizontal cross-sectional view of the bill validator throat of Fig. 8, taken along the line 9-9 of Fig. 8;

Fig. 10 is an enlarged perspective view of a receiving bezel in accordance with the invention, being shown while accepting submitted currency; and

Fig. 11 is an enlarged perspective view as shown in Fig. 10, the receiving bezel being shown while accepting a submitted winning game coupon.

Best Modes for Carrying Out the Invention and Disclosure of Invention

FIGS. 3 and 4 show an individual pull-tab game coupon 100 in accordance with a preferred embodiment of the invention. Coupon 100 has two plies or layers: a facing layer 102 and a backing layer 104. Facing layer 102 is serrated, as shown by the dashed lines in the front view of Fig. 3, to define a removable playing portion 106.

To determine whether a game coupon is a winning coupon, playing portion 106 is peeled partially or completely away from backing layer 104. Back side 108 of playing portion 106, as shown in Fig. 4, is imprinted with game symbols 110, providing a player-readable prize code indicating the winnings or prize credits represented by the game coupon. The player-readable prize code consists of rows of generally known symbols such as used in slot machines, for example. A legend or prize code key 112 is preferably printed on the front side of playing portion 106 to indicate the amount of winnings or game credits associated with specific combinations of symbols.

The specific physical configuration of game coupon 100 enables it to be easily handled and transported by automated devices. Prior art pull-tabs when opened include a number of connected and awkwardly-extending flaps or tabs. In contrast, the operable or playing portion 106 of an opened game coupon 100

consists of a single, flat sheet of paper or thin cardboard. As described below, such a sheet can be received and handled by a bill or currency validator, while inserting an opened prior art pull-tab coupon into a bill validator would be difficult because of the extending flaps. Game coupon 100 thus provides a much improved pull-tab coupon, being easily opened and viewed by a player, and having the additional advantage of being easily handled by a commonly available bill validator.

Furthermore, in addition to game symbols 110 each winning game coupon 100 includes a machine-readable prize code to indicate the number of prize game credits for which the coupon is redeemable. Game coupon 100 also includes a unique machine-readable coupon identification code and a machine-readable game set code. Each game coupon of a game coupon set has its own, unique coupon identification code. However, all game coupons in a single game coupon set have identical game set numbers. These codes are used to authenticate game coupons and to prevent duplication of winning coupons.

More specifically, back side 108 of playing portion 106 is encoded with a digital, machine-readable barcode 114. Barcode 114 allows a pull-tab machine, when equipped with a bar-code reader as described below, to determine both the validity of the game coupon and the number of prize game credits with which the player should be credited. The barcode utilizes a standard format such as "interleaved two of five." As a further protection against fraud, copying can be largely prevented by printing the barcode on a background of grey OCR ink.

Barcode 114, in the preferred embodiment, represents ten decimal digits which can be decoded by a standard barcode reader. The ten decimal digits are allocated between the game set code, the coupon identification code, and the prize code. Arrows are optionally printed on playing portion 106 to indicate the direction in which it should be inserted into the pull-tab machine, to insure proper reading of barcode 114.

Five of the ten barcoded digits are allocated to a game set code which ranges from 0 to 99,999. The game set code is common to all game coupons in a single game coupon set, i.e., each game coupon of the set bears an identical game set code.

Three of the ten digits are allocated to a unique coupon identification code. Each winning coupon in a single game set bears a unique coupon identification code ranging from 0 to 999. Coupon identification codes 0 through 997 represent winning game coupons. Coupon identification code 998

represents a winning coupon which, because of a high winning amount, is redeemable only by a cashier. Coupon identification code 999 signifies a set-up coupon as described below.

The two remaining digits are allocated to a prize code, indicating the winning amount or the number of prize credits associated with the winning game coupon.

Each set of game coupons includes a plurality of game coupons 100. Each coupon within the set is identified by a common game set code which is visible on the face of the coupon (generally designated by the reference numeral 116 in Fig. 3). A known number of game coupons 100 within each set are winning coupons, and are therefore redeemable for cash or a number of prize game credits.

FIG. 5 shows a game set-up coupon 118. A single game set-up coupon 118 is provided with each game coupon set. Each game set-up coupon 118 bears a game set-up code, imprinted on game set-up coupon 118 in the form of a barcode 120. The game set-up code includes a coupon identification code equal to 999 to identify it as a set-up coupon. The game set-up code also includes a game set code, corresponding to the game set code 116 imprinted on the face of each coupon in the set, as well as any other information or codes required to configure the pull-tab machine for use with the set of game coupons.

In operation, a game coupon set is initially loaded into the magazines of a pull-tab machine. The game set-up coupon is subsequently read by the pull-tab machine. The game set-up coupon is identified as a set-up coupon by its coupon identification number of 999. The pull-tab machine records the game set code for later comparison with the game set codes from submitted winning game coupons.

FIG. 6 shows a pull-tab gaming machine 200 in accordance with a preferred embodiment of the invention. Pull-tab gaming machine 200 comprises a coupon acceptor 202, a coupon machine or vendor 204, and a visual numeric display 206. It is adapted to accept and authenticate game coupons such as those described above.

Coupon vendor 204 is a conventional pull-tab dispenser which is triggerable to dispense individual game coupons to a player. Coupon vendor 204 thus comprises one or more coupon magazines 210, each containing a vertical stack of pull-tab game coupons 212, such as those described above. Coupon

vendor 204 further comprises a coupon dispensing slot 214 through which pull-tab coupons 212 are dispensed.

Coupon acceptor 202 is mounted alongside coupon vendor 204. It could alternatively be mounted or incorporated within coupon vendor 204. Coupon acceptor 202 accepts submitted currency and game coupons through a receiving bezel 215. Coupon acceptor 202 issues a sequence of electronic pulses to coupon vendor 204 in response to receiving winning game coupons or valid currency. Each pulse represents a specified cash amount or a specified number of game credits. Coupon vendor 204 accepts the electronic pulses from coupon acceptor 202, crediting the player with game credits in response to the electronic pulses. The number of issued game credits is indicated by numeric display 206. Thereafter, coupon vendor 204 dispenses individual game coupons at the player's command to the extent of the accumulated game credits.

Coupon vendor 204 includes a selection dispensing button 216 corresponding to each multiple coupon magazine 210. Indicator lamps 218 are mounted above the selection buttons 216 to indicate when the corresponding coupon magazines are available for selection. A player spends an issued game credit by depressing one of the selection buttons, causing a game coupon to be dispensed from the corresponding coupon magazine 210. For each button depressed, the machine dispenses an individual game coupon and simultaneously subtracts a game credit from the player's total. Some machines dispense multiple game coupons if the corresponding selection dispensing button is held down.

FIG. 7 shows gaming machine 200 in block diagram. Vendor 204 accepts a game credit electrical signal line 220 from coupon acceptor 202 and issues game credits in response thereto. Game credit signal line 220 preferably carries a series of electronic pulses representing the number of game credits to be issued. Coupon acceptor 202 accepts appropriate currency submitted by a player, as in a conventional pull-tab machine. It is operably connected to authorize or trigger coupon vendor 204 to selectively dispense individual game coupons to the player in response to the value of submitted currency. Once authorized, coupon vendor 204 dispenses coupons in response to a player depressing one of the selection dispensing buttons.

In addition to accepting currency, coupon acceptor 202 accepts winning game coupons as if they were currency, and automatically credits the player with the number of game credits represented by the submitted winning game coupons. Specifically, coupon acceptor 202 has means for accepting winning coupons

themselves and for reading the prize codes encoded thereon. It is operably connected through line 220 to authorize coupon vendor 204 to issue game credits and to eventually dispense game coupons in response to the number of prize game credits coded on submitted winning game coupons, but only when said winning game coupons have identification codes which have not previously been read.

In the preferred embodiment, coupon acceptor 202 comprises a currency or bill validator 222, a code reader 224, a locked storage compartment 226, a microprocessor controller 228, an account memory 230, and a verification memory 232. Bill validator 222 and code reader 224 are housed within locked storage compartment 226.

Bill validator 222, code reader 224, and display unit 206 are connected through communications interfaces to microprocessor controller 228. Account memory 230 and verification memory 232 are conventional random access memories which are also connected to microprocessor controller 228. These memories are also preferably connected to a backup source of power, such as a battery, to prevent loss of data during power outages.

Microprocessor controller 228 includes means for triggering or authorizing coupon vendor 204 to dispense individual game coupons to a player in response to the value of submitted currency and in response to the number of prize game credits represented by the prize codes from submitted winning game coupons. More specifically, as noted above, it is connected to coupon vendor 204 through game credit signal line 220 to trigger vendor 204.

Microprocessor controller 228 is also programmed to coordinate the various functions of gaming machine 200, primarily accepting currency and winning game coupons and triggering coupon vendor 204 to issue the appropriate numbers of game credits. Microprocessor controller 228 is connected to display unit 206 to display accumulated game credits and various status messages.

To purchase game coupons, a player initially inserts currency into coupon acceptor 202 of gaming machine 200. The gaming machine records the value of such currency as game credits. The player depresses appropriate selection dispensing buttons 216, and coupon vendor 204 dispenses individual game coupons in response. To identify winning game coupons, the player separates the game coupons and inspects the player-readable prize codes printed on the back side of the playing portion. Winning coupons can be redeemed by a cashier for

cash, as in conventional pull-tab games, or may be inserted back into coupon acceptor 202 for additional credits.

Coupon acceptor 202 includes coupon verification means for verifying that the coupon's game set code matches that of an earlier-submitted game set-up coupon and for determining whether the identification code of each submitted winning coupon has previously been read. The gaming machine will issue game credits only in response to game coupons having the appropriate game set code, as indicated by the game set-up coupon previously submitted by the machine operator. In addition, the coupon verification means records the unique coupon identification code of each winning coupon as it is received. After recording these numbers, any subsequent coupon from the same set having the same unique coupon identification code is rejected. This feature prevents a player from using duplicated game coupons.

The coupon verification means comprises the microprocessor controller 228 and the coupon verification memory 232. Coupon verification memory 232 has a single memory bit which corresponds or is mapped to each possible coupon identification code. Microprocessor controller 228 sets the single bit corresponding to a coupon identification code when that coupon identification code is read or decoded from a submitted game coupon. Subsequently, as further game coupons are submitted, microprocessor controller 228 accesses verification memory 232 to determine whether the winning coupon, or an identical coupon having the same identification code, has previously been submitted. If so, the coupon is rejected and an alarm optionally given. Submitting a new game set-up card clears verification memory 232.

Different verification memory schemes are of course possible. For instance, microprocessor 228 could be programmed to simply record a list of coupon identification codes as they are submitted. Such a list would require, however, a byte of memory storage for each possible coupon identification code. Instead, the mapping scheme described above requires only one byte for every eight possible coupon identification codes. Thus, the memory scheme of the present invention reduces memory requirements by a factor of eight over more conventional memory schemes. This allows compact and inexpensive single-chip microcontrollers to be used, which include computing logic, control interfaces, and memory on a single chip.

Microprocessor controller 228 is programmed to keep a running total of game activities in account memory 230 for accounting purposes. These totals can

be displayed and identified on display 206 in a way which is similar to a slot machine. An accounting mode is activated by depressing or closing a switch 254 to ground. In response, microprocessor controller 228 serially displays a variety of numbers, including, for example: a total of all denominations of bills received by the machine; the number of game coupons received; the number of credits issued by coupon acceptor 202 to coupon vendor 204; and the number of game set-ups made. Account memory 230 is not affected by submission of a new game set-up coupon.

FIG. 8 shows the physical arrangement of bill validator 222 and code reader 224 in relationship to one another. Bill validator 222 is a paper currency reader such as used in a variety of vending machines. For example, the preferred embodiment described herein incorporates a modified Model IVO currency reader available from Coin Bill Validator, Inc. of Deer Park, New York, U.S.A. The unmodified Model IVO, as is the case with most paper currency readers, is programmed to automatically reject documents which cannot be confirmed as currency. In the preferred embodiment, however, the Model IVO has been modified to accept a reject override signal 234 (Fig. 7) from microprocessor controller 228. When the reject override signal 234 is active, bill validator 222 is programmed to override its normal response, and to accept the submitted document regardless of whether it can be confirmed as valid currency.

Bill validator 222 is mounted within locked storage compartment 226, having a receiving throat 236 which extends toward the front cover of locked storage compartment 226 to accept currency submitted by a player. A special receiving bezel 215 is provided in an aperture in the front cover of locked storage compartment 226 and surrounding receiving throat 236. Receiving bezel 215 facilitates entry of both currency and winning game coupons into locked storage compartment 226 and into bill validator 222.

Bezel 215 is molded from a suitable plastic, having both a currency entry 240 and a game coupon entry 242. Currency entry 240 comprises a tapered opening extending the full width of receiving throat 236. Currency entry 240 accepts currency from a player and guides it into bill validator 222. Currency entry 240 is aligned so that currency is routed horizontally into receiving throat 236. Fig. 10 shows currency 244 being received through currency entry 240 into bill validator 222.

Bill validator 222 has appropriate conventional sensors and logic to detect legal currency. Normally, bill validator 222 will reject documents which cannot

be verified to be valid currency. Rejected documents are returned out through throat 236 and currency entry 240 to the player. If valid currency is detected, however, bill validator 222 passes the currency through an internal passage into locked storage compartment 226. Upon detecting valid currency, bill validator 222 issues a series of electronic pulses through a validator credit line 246 to controller 228 (Fig. 7). Microprocessor controller 228 is operably connected to trigger coupon vendor 204 to dispense game coupons in response to these electronic pulses which indicate the amount or value of the submitted currency.

Bill validator 222 also accepts game coupons, through coupon entry 242. Coupon entry 242 has a width which corresponds to the width of a game coupon, generally less than the width of receiving throat 236. Coupon entry 242 accepts game coupons such as game coupon 248 shown in Fig. 11, and guides them into bill validator 222 beneath code reader 224. Coupon entry 242 is above currency entry 240, and is downwardly inclined to guide game coupons into the horizontally-extending receiving throat 236.

Code reader 224 is mounted relative to bill validator 222 to scan the barcodes of winning game coupons as they are submitted to bill validator 222. More specifically, code reader 224 is received within bezel 215 above throat 236 and behind the front cover of locked storage compartment 226. Game coupons are inserted into coupon entry 242, which aligns them along the left-hand edge of throat 236. Slight modifications, as shown in Fig. 9, are required to allow game coupons to be inserted into receiving throat 236 and to allow code reader 224 to focus upon game coupons being drawn into bill validator 222 through receiving throat 236. Specifically, a slot 250 is formed across the top of receiving throat 236 to allow passage of game coupons from coupon entry 242. In addition, an aperture 252 is formed in the top of receiving throat 236 at a lateral position corresponding to the lateral position of the barcodes imprinted on inserted game coupons. This aperture allows code reader 224 to focus upon submitted game coupons.

Code reader 224 comprises a conventional scanning barcode reader which, in association with microprocessor controller 228, reads the number of prize game credits coded on submitted winning game coupons. For example, the preferred embodiment incorporates a standard Model LTS3 barcode reader, available from Welch Alyn of Skaneateles Falls, New York, U.S.A. Game coupons pass beneath code reader 224 as they are submitted, while code reader 224 and

microprocessor controller 228 read and decode the barcode imprinted thereon. The barcode information is checked by microprocessor controller 228 for validity against the current game set code and against coupon identifications codes of game coupons already received and read. If a valid winning game coupon is detected, microprocessor controller 228 activates reject override signal 234, causing bill validator 222 to accept the game coupon and to pass it therethrough into locked storage department 226. Microprocessor controller 228 simultaneously issues the appropriate signals to coupon vendor 204 through credit signal line 220 to credit the player with the correct number of prize game credits.

If a non-winning game coupon is inserted, bill validator 222 rejects the submitted game coupon out through its receiving throat 236. However, because coupon entry 242 is inclined from above to meet receiving throat 236, the rejected game coupon will travel outward from bill validator 222 through currency entry 240 rather than through coupon entry 242.

The principal features of the preferred embodiment described above can be implemented in other types of gaming machines besides pull-tab machines. One possible application is with popular lottery games in which lottery tickets are presently purchased and subsequently redeemed from a cashier. With the invention described above, it is possible to both vend and redeem lottery tickets from an automated machine, providing convenience to both lottery players and merchants selling lottery tickets. It would also be desirable and possible in many such applications, with appropriate additions of logic and hardware, to allow a player to redeem winning coupons for cash rather than additional game coupons.

Another possible application is within a slot machine. The slot machine could be equipped with a coupon vendor so that a player could "cash out" at any time. Rather than dispensing cash, the slot machine would provide the player with a barcoded coupon representing the number of game credits the player has accumulated to that point. The coupon would then be redeemable at a cashier or at a coupon acceptor incorporated in the same or another slot machine.

Because of the coupon acceptor described above, a player is able to redeem game coupons at the gaming machine itself. Accordingly, there is no need to stop play while waiting for a cashier to redeem a winning coupon. Rather, the coupon can be immediately submitted to the gaming machine for game credits. This is a significant improvement in convenience for both players and owners of gaming establishments.

Claims

1. A gaming machine for vending game coupons in return for game credits, said game coupons being coded with a number of game credits and being redeemable for said number of game credits, the gaming machine comprising:

a coupon vendor which selectively dispenses individual game coupons to a player; and

a coupon acceptor which accepts said individual game coupons from the player after said individual game coupons have been dispensed by the coupon vendor, the coupon acceptor being operably connected to signal the gaming machine to issue game credits in response to the number of game credits coded on said individual game coupons.

2. The gaming machine of claim 1, the coupon acceptor comprising a currency acceptor which accepts currency from the player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said currency.

3. The gaming machine of claim 1, wherein the coupon acceptor comprises a code reader for reading the number of game credits coded on submitted game coupons.

4. The gaming machine of claim 1, the coupon acceptor comprising:

a currency validator which accepts currency submitted by the player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said submitted currency; and

the currency validator also accepting submitted game coupons, the currency validator including a code reader for reading the number of game credits coded on the submitted game coupons.

5. The gaming machine of claim 1, the coupon acceptor further comprising means for recording submitted game coupons and for rejecting duplications of game coupons which have already been submitted.

6. A gaming machine for vending game coupons in return for currency or game credits, wherein some of the vended game coupons are winning coupons, said winning coupons being coded with a digital machine-readable prize code representing a number of prize game credits and being redeemable for said number of prize game credits or for cash, the gaming machine comprising:

a coupon vendor which selectively dispenses individual game coupons to a player;

a coupon acceptor which accepts said individual game coupons from the player after said individual game coupons have been dispensed by the coupon vendor;

the coupon acceptor including a code reader for reading the prize codes from winning coupons from among said individual game coupons;

the coupon acceptor being operably connected to the coupon vendor to authorize the coupon vendor to dispense game coupons in response to the number of prize game credits represented by the prize codes from said winning game coupons.

7. The gaming machine of claim 6, the coupon acceptor including a currency validator which accepts currency from the player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said currency.

8. The gaming machine of claim 6, wherein the machine-readable codes are barcodes imprinted on the winning game coupons, the code reader comprising a barcode reader.

9. The gaming machine of claim 6, the coupon acceptor comprising:

a currency validator which receives currency submitted by the player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said submitted currency; and

the currency validator also receiving the submitted game coupons, the code reader being mounted on the currency validator to scan the prize codes as winning game coupons are received by the currency validator.

10. The gaming machine of claim 6, wherein the number of prize credits is coded on each winning game coupon with a barcode, the coupon acceptor comprising:

a currency validator which receives game coupons and currency submitted by player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said submitted currency;

the code reader comprising a barcode reader;

the currency validator also receiving the submitted game coupons, the barcode reader being mounted on the currency validator to scan the prize codes as winning game coupons are received by the currency validator.

11. The gaming machine of claim 6, wherein each winning game coupon is coded with a unique machine-readable coupon identification code, the coupon acceptor further comprising a coupon verification memory, wherein the coupon acceptor records coupon identification codes from submitted winning game coupons and rejects game coupons whose coupon identification codes have already been recorded.

12. The gaming machine of claim 6, wherein each winning game coupon is coded with a unique machine-readable coupon identification code;

the coupon acceptor further comprising a coupon verification memory having a single bit corresponding to each possible coupon identification code;

wherein the coupon acceptor sets the single bit corresponding to a coupon identification code when that coupon identification code is read from a submitted game coupon, and rejects a submitted game coupon when the bit corresponding to its coupon identification code has already been set.

13. A gaming machine for individually vending sets of game coupons in return for game credits, wherein some individual game coupons are winning coupons, said winning coupons being coded with a machine-readable prize code representing a number of prize game credits and a unique coupon identification code, the winning coupons being redeemable for said number of prize game credits or for currency, the gaming machine comprising:

a coupon vendor which selectively dispenses individual game coupons to a player;

a coupon acceptor which accepts individual game coupons submitted by the player;

the coupon acceptor including a code reader for reading the prize codes and the coupon identification codes from submitted winning game coupons;

the coupon acceptor also including coupon verification means for determining whether the identification code of each submitted winning coupon has previously been read; and

the coupon acceptor being operably connected to the coupon vendor to authorize the coupon vendor to dispense game coupons in response to the number of prize game credits coded on submitted winning game coupons only when said winning game coupons have coupon identification codes which have not previously been read.

14. The gaming machine of claim 13, the coupon acceptor including a currency acceptor which accepts currency from the player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said currency.

15. The gaming machine of claim 13, wherein the machine-readable codes are barcodes imprinted on the winning game coupons, the code reader comprising a barcode reader.

16. The gaming machine of claim 13, the coupon acceptor comprising:

a currency validator which receives currency submitted by the player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said submitted currency; and

the currency validator also receiving the submitted game coupons, the code reader being mounted on the currency validator to scan prize codes as winning game coupons are received by the currency validator.

17. The gaming machine of claim 13, wherein the prize codes are coded on each winning game coupon with a barcode, the coupon acceptor comprising:

a currency validator which receives game coupons and currency submitted by player and establishes a value of the submitted currency, the coupon acceptor being operably connected to authorize the coupon vendor to dispense game coupons in response to the value of said submitted currency;

the code reader comprising a barcode reader; and

the currency validator also receiving the submitted game coupons, the barcode reader being mounted on the currency validator to scan prize codes as winning game coupons are received by the currency validator.

18. The gaming machine of claim 13, the coupon acceptor further comprising a coupon verification memory, wherein the coupon acceptor records coupon identification codes from submitted winning game coupons and rejects game coupons whose coupon identification codes have already been recorded.

19. The gaming machine of claim 13, the coupon acceptor further comprising a coupon verification memory having a single bit corresponding to each possible coupon identification code;

wherein the coupon acceptor sets the single bit corresponding to a coupon identification code when that coupon identification code is read from a submitted game coupon, and rejects a subsequently-submitted game coupon when the bit corresponding to its coupon identification code has already been set.

20. The gaming machine of claim 13, wherein each coupon of the set is coded with a common game set code, the coupon acceptor including coupon verification means for rejecting game coupons which are not coded with the common game set code.

21. A gaming machine coupon acceptor for authorizing a coupon vendor to dispense individual game coupons, wherein some of the vended game coupons are winning coupons, said winning coupons being coded with a digital machine-readable prize code representing a number of prize game credits and being redeemable for said number of prize game credits or for cash, the coupon acceptor comprising:

a currency validator which accepts currency and winning game coupons from a player after said winning game coupons have been dispensed by the coupon vendor;

a code reader positioned relative to the currency validator to scan prize codes from said winning coupons as they are accepted by the currency validator; and

a controller operably connected to the currency validator and the code reader, the controller having means for authorizing the coupon vendor to dispense individual game coupons to a player in response to the value of submitted currency and in response to the number of prize game credits represented by the prize codes from said winning game coupons.

22. The gaming machine coupon acceptor of claim 21, herein each winning game coupon is coded with a unique coupon identification code which is readable by the code reader, the coupon acceptor further comprising a coupon verification memory, wherein the controller is programmed to record coupon identification codes from submitted winning game coupons and to reject game coupons whose coupon identification codes have already been recorded.

23. The gaming machine coupon acceptor of claim 21, wherein each winning game coupon is coded with a unique machine-readable coupon identification code;

the coupon acceptor further comprising a coupon verification memory having a single bit corresponding to each possible coupon identification code;

wherein the controller is programmed to set the single bit corresponding to a coupon identification code when that coupon identification code is read from a submitted game coupon, and to reject a submitted game coupon when the bit corresponding to its coupon identification code has already been set.

24. A set of game coupons for vending to a player by a gaming machine in return for game credits, the set comprising:

a plurality of game coupons, wherein some of the game coupons are winning coupons which are redeemable for a number of prize game credits;

a player-readable prize code positioned on each game coupon, the player-readable prize code indicating whether the coupon is a winning coupon; and

a machine-readable prize code positioned on each game coupon, the machine-readable prize code indicating the number of prize game credits for which the coupon is redeemable.

25. The game coupon set of claim 25, further comprising a machine-readable game set code positioned on the winning game coupons of the set, the game set code being common to each of the winning game coupons.

26. The game coupon set of claim 26, further comprising a game set-up coupon which is coded with the game set code for programming the game set code into the gaming machine.

27. The game coupon set of claim 25, further comprising a plurality of machine-readable coupon identification codes positioned on the winning game coupons of the set, each winning game coupon having positioned thereon a unique one of the coupon identification codes.

28. The game coupon set of claim 25, the machine-readable prize code comprising an imprinted barcode.

29. The game coupon set of claim 25, further comprising:

a machine-readable game set code positioned on the winning game coupons of the set, the single game set code being common to each of the winning game coupons; and

a plurality of machine-readable coupon identification codes positioned on the winning game coupons of the set, each winning game coupon having positioned thereon a unique one of the coupon identification codes.

30. The game coupon set of claim 30, the machine-readable codes comprising imprinted barcodes.

31. The game coupon set of claim 30, further comprising a game set-up coupon which is coded with the game set code for programming the game set code into the gaming machine.

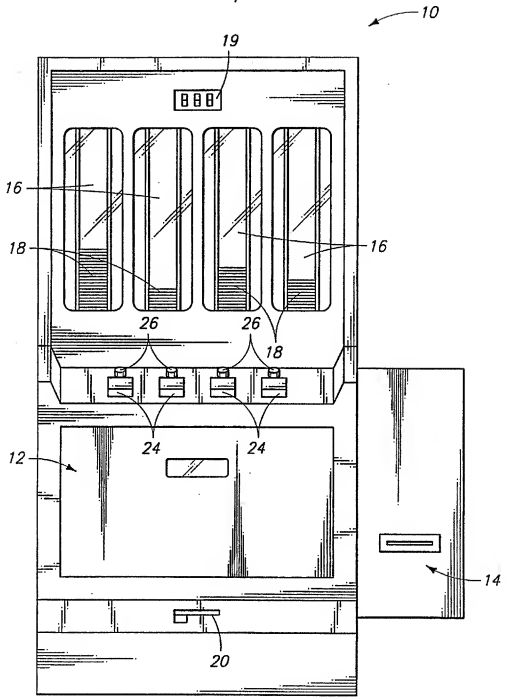

Fig 1
PRIOR ART

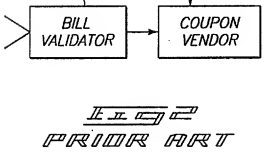

Fig 2
PRIOR ART

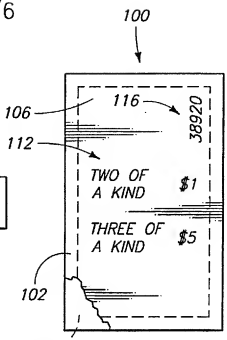

Fig 3

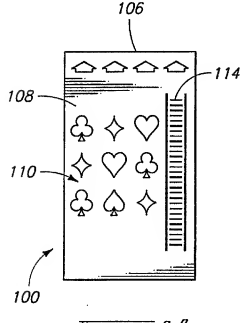

Fig 4

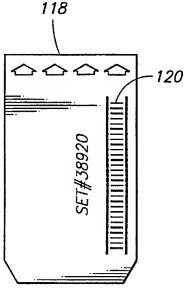

Fig 5

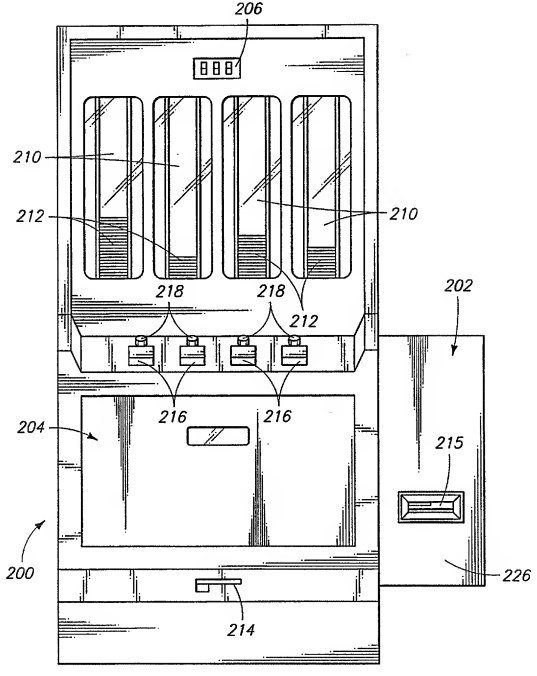

Fig 6

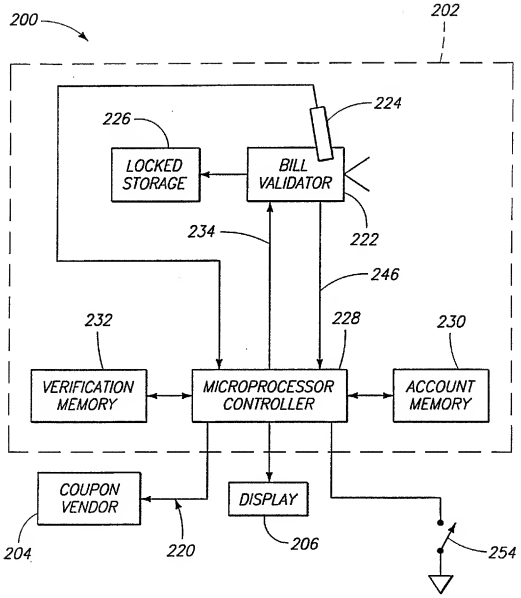
200
202
224
226
LOCKED STORAGE
BILL VALIDATOR
222
234
246
232
228
230
VERIFICATION MEMORY
MICROPROCESSOR CONTROLLER
ACCOUNT MEMORY
COUPON VENDOR
DISPLAY
204
220
206
254

Fig. 1

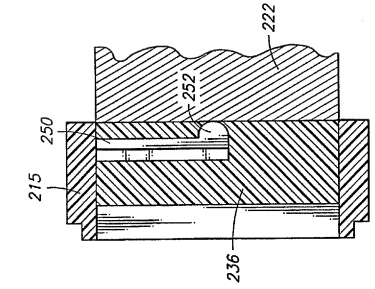

FIG. 5

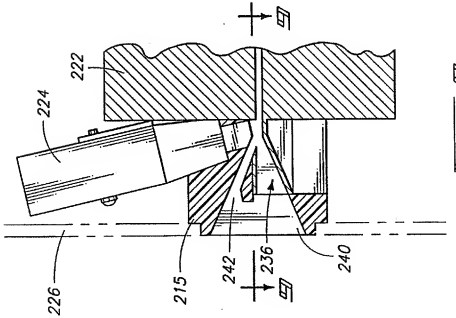

FIG. 6

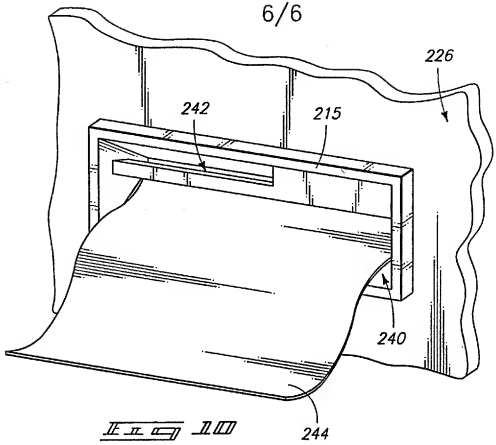

Fig. 11

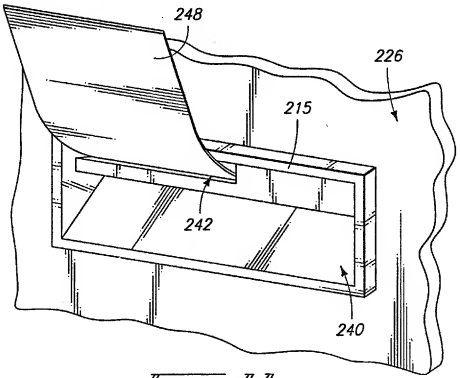

Fig. 12

INTERNATIONAL SEARCH REPORT

Int tional application No.
PCT/US93/11535

A. CLASSIFICATION OF SUBJECT MATTER

IPC(5) :G07F 7/08; A63F 3/06, 9/00
US CL. :273/138A, 139; 194/206, 212, 210, 213; 235/381
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 273/138A, 139, 138R; 283/901, 903; 194/206, 210, 212, 213, 350; 235/381

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 3,958,103 (Oka et al.) 18 May 1976, see entire document.	None
A	US, A, 4,124,109 (Bissell et al.) 07 November 1978, See entire document.	None
A	US, A, 4,373,726 (Churchill et al.) 15 February 1983, See entire document.	None
A	US, A, 4,398,708 (Goldman et al.) 16 August 1983, See entire document.	None
X	US, A, 4,669,729 (Solitt et al.) 02 June 1987, see column 2, lines 13-27, see column 3, lines 55-66, see column 4, line 64 to column 5, line 14.	24-31

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be part of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
18 MARCH 1994	APR 18 1994
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer BENJAMIN H. LAYNO
Facsimile No. NOT APPLICABLE	Telephone No. (703) 308-1815

Form PCT/ISA/210 (second sheet)(July 1992)*

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US93/11535

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 4,677,553 (Roberts et al.) 30 June 1987, See entire document.	None
A	US, A, 4,809,837 (Hayashi) 07 March 1989, see entire document.	None
A	US, A, 5,002,313 (Salvatore) 26 March 1991, see entire document.	None
A	US, A, 5,118,109 (Gumina) 02 June 1992, see entire document.	None